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The
Home Garden Handbooks

GLADIOLUS

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By
F. F. ROCKWELL

**SHRUBS
GLADIOLUS
EVERGREENS FOR THE
SMALL PLACE
ROCK GARDENS
IRISES
DAHLIAS**

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Home Garden Handbooks

GLADIOLUS

BY

F. F. ROCKWELL

**AUTHOR OF "AROUND THE YEAR IN THE GARDEN,"
"THE BOOK OF BULBS," "ROCK GARDENS," ETC.**

Drawings by

GEORGE L. HOLLROCK AND THE AUTHOR

New York
THE MACMILLAN COMPANY

1930

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**Set up and electrotyped.
Published August, 1927.**

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***Printed in the United States of America by*
THE FERRIS PRINTING COMPANY, NEW YORK**

TO

A. E. KUNDERD

*whose gladiolus introductions have for
many years helped brighten the gardens
of the world, this little book is dedicated.*

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HOW TO USE THIS BOOK

THIS is one of the Home Garden Handbooks. Like its companion volumes in the series, it is planned to give, in as few words as possible, the information needed to enable you to succeed with one important garden task. In the present instance the subject dealt with is how to grow the finest gladiolus, for cut flowers, for garden effects, and to get good bulbs for another season's planting.

No photographs are reproduced in this book. There are two reasons for this: first, the author feels that the points in the text which really need illustrating can be explained more clearly in drawings than by photographs; secondly, by omitting photographs it is possible for the publishers to give you the information which this book contains at a much lower price.

THIS BOOK IS DESIGNED TO SERVE PRIMARILY AS A SUPPLEMENT TO YOUR SEED AND BULB CATALOGS, in which you will find illustrated, often in color, not only the varieties mentioned in these pages but the host of fine, new glads which are introduced by seed houses and gladiolus specialists from season to season. Therefore, it should be studied and used in connection with your catalogs—the opening chapters, with their suggestions on how to use gladiolus, before you make out your order for bulbs; and the succeeding chapters on how to plant and care for your flowers, before you do your planting.

The greatest care has been taken to make the index as complete as possible so that the reader may find immediately all the information which is given on any particular point, even though it may be referred to in several places in the book. Get the habit of consulting your Home Garden Handbooks while you are doing the work!

GLADIOLUS

INTRODUCTION

By DR. S. IRVING MOODY
President American Gladiolus Society

BEFORE the dawn of civilization one of the characteristics to develop earliest, after the serious business of providing daily food, was the habit of collecting. At first, objects for use in the near future were accumulated. As time passed, the insistent demand for necessities was more easily satisfied, our social and æsthetic tastes enlarged, and the objects of collecting changed. Bits of highly colored stone and shells, bone and metals were then accumulated for personal adornment. Now our desires are for coins, stamps, paintings, antiques, etc., for our homes or museums. Today we have more time than ever for recreation, and the trend is toward out of doors pursuits. Making a garden interests us, and growing named varieties of Gladiolus satisfies our instinct for collecting.

Most of us allow our egotism to influence our actions, so what is more natural than to increase our collection of "Glads"? In the endeavor to excel, our aim may be to produce a glad of better color, one of more pleasing form, the best quality of bloom, or have the largest number of varieties; perhaps evolve a new, sweet-scented race. Being social creatures, we want to talk over our achievements with kindred souls and glean from them some gems of wisdom.

The American Gladiolus Society is an organization that fits right into this scheme of life. It was started as a society of connoisseurs and professional gladiolus growers. About 1921 the policy of the Society was changed so that amateurs were accepted and sought as members. From that time till now the membership has steadily increased so at present we have one of

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the largest flower societies in the world. Its aims are to stimulate interest in the culture of the gladiolus, and to assist its members with their problems. The Society now has a monthly bulletin of magazine form, in which are published the activities of the Society and articles of interest to its members. There is also a service department. We have trial grounds for new varieties, and a registry for recording new varietal names. Annually an exhibition is held in a favorable place, and we hope that many local shows will be seen in the near future. Our field of endeavor is continually broadening, and we are trying as a body to solve the questions that are beyond the scope of the individual.

Several State Agricultural Colleges are doing research work with members of the Society actively co-operating. Hybridizers are progressing rapidly; many new forms and color combinations are appearing each season. Growers are continually expanding their operations and are yet barely able to keep up with the demand for first class stock.

The number of amateurs is growing remarkably. There is a subtle fascination about each phase of growing glads that, once the hobby is started, one is restrained only by the size of available space or the budget allowance. Strange as it may at first seem, the amateurs are bringing to the shows the finest quality flowers. To win over their professional competitors is the rule rather than the exception; what they lack in size of exhibits is more than compensated for by the condition, quality and arrangement of their displays. They are always welcome, and the older members seem delighted to help them.

The bibliography of the gladiolus is very limited. Only a few books have been written about this flower, and the pamphlets have mostly come as part of the catalogs from the commercial bulb growers. In recent years there have been several very interesting magazine articles treating the subject in different ways. The present volume will undoubtedly be very helpful to the beginner; and present from a new viewpoint to the old timer the ever interesting details of one way to find contentment.

“Have a hobby, grow some Glads.”

CHAPTER I

THE MODERN GLADIOLUS—ITS PLACE IN THE GARDEN

WERE you to ask a dozen different gardeners why the gladiolus is so universally popular, you would probably get a dozen different answers.

On two points, however, all of them would agree. First, because it can be grown anywhere in the United States—and in most of Canada—North, South, East and West; and in practically any type of soil from clay loam to sand. Second, because it is the easiest of any of our popular flowers to grow, there being no insects and practically no diseases to bother it under ordinary conditions in the amateur's garden.

I have grown gladiolus commercially, and in my garden, for more than twenty years, in half a dozen sections in several states, and have never yet seen the foliage or flowers attacked by any insect; and seldom, in garden culture, by any disease.

Despite these great advantages, which the gladiolus has always possessed, its present vogue is of recent development. From 1921 to 1924 the membership of the American Gladiolus Society increased from 274 to 3,265.

The gladiolus, universally known in our grandmothers' gardens as the "Sword Lily," with its broad, stiff, and thin-edged leaves, not unlike the sword of the Roman gladiator, had been familiar for generations. Where, then, did the sudden increase in favor, indicated by this surprising growth in the Society's membership, begin?

It would be impossible to say. But certainly the introduction

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of Groff's Hybrids, and of the Childsi type, each of which represented a tremendous advance in both size of flowers and range of colors, gave a great impetus to gladiolus growing. I well remember the sensation caused by the first flowers of Groff's Hybrids which I displayed at my local county fair; and again when I exhibited a collection of named varieties, headed by the then new *America*. This was a wholly unimportant flower exhibit, it is true; but the same thing was happening at agricultural fairs and small local flower shows all over the country; and wherever a few of these newer glads were shown, every lover of flowers immediately desired to possess them.

With the success of the first American introductions, seed and bulb growers, and many amateurs, took up the work of hybridizing, and scores of new varieties were soon developed. Most of these were marked improvements over the older sorts.

The modern gladiolus is a truly wonderful flower. The range of colors now available is almost beyond belief, exceeding in variety of delicate tints and shades any other popular flower. Pure white, red, crimson, yellow, very good purples and blues, and most of the intermediate shades and combinations of color imaginable, are now represented. The delicate pinks, mauves and lavenders developed during recent years compare not unfavorably with the coloring of the most beautiful orchids.

The variation in the shape or form of the flowers, and in the habit of growth of the "spikes" or flower-stalks, is quite as remarkable as the wide range of coloring. The gladiolus of grandmother's day was a short stiff spike of small red flowers. Many people grew it, but it was not considered among the finest garden flowers. But the modern forms range from dainty, dwarf growing varieties to immense spikes attaining a height of four to five feet, with individual flowers often four and occasionally even six inches across! The flowers may be wide open, like an amaryllis, or quaintly hooded; poised with spreading "wings" like a butterfly, or recurved like a lily; they may be plain or ruffled, or even frilled or "lacinated"; and they may be crowded close along the spike, or placed at intervals which make them appear still more butterfly-like.

With such a wealth of color, character and size to select from, in a flower so universally adaptable to soil and climate conditions, and so easy for even the beginner to grow to perfection, it is little wonder that the number of gladiolus enthusiasts increases every year. Certainly this always reliable old flower stands today, in its many new forms and colors, as one of the finest of plants for every garden, from the beginner's first attempt in a backyard, to the most elaborate planting on a country estate.

GLADIOLUS IN THE GARDEN

It is strange how the unwritten law of custom holds us down. Even in planning and planting our gardens—where if anywhere originality is desirable and there are no penalties for breaking away from standardized methods—we continue, from force of habit, to do just as everyone else does!

Is not this the only reason why the gladiolus has not come into more general use as a garden flower, as well as for cutting? Most gardeners, both amateur and expert, plant gladiolus in long rows in beds by themselves, at regularly spaced intervals. This facilitates culture, and is entirely satisfactory for the production of flowers for cutting. But why should the gladiolus be limited so strictly to this field when it is so admirably adapted to a much wider garden usefulness?

Not so many years ago most gardeners thought the only way to plant tulips was in "beds" of geometrical design, worked out in sharply contrasting colors; and that those still earlier harbingers of spring, the gaily gowned little crocuses, must be "spotted over the lawn"—a system admirably designed to shorten their lives, as the foliage was almost invariably clipped off short by the lawn mower before serving its purpose of helping to develop the new bulb! But we have got bravely over our misuse of these flowers. We have learned to create more beautiful effects by using them in the general planting about the place, associated with hardy perennials or shrubs, or in irregular, natural-looking groups in the long curved border. So there is hope that in time we may release the glorious gladiolus from

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Make succession plantings of gladiolus for cutting, and use them also for landscape planting and in the flower garden.

the chain-gang file, and turn it loose to romp with its sister flowers in the mixed border; or to stand in stately groups which lighten up the dark corners of evergreens or shrubbery; or, like hollyhocks, against some sheltering wall.

These suggestions are not merely theory. I have planted gladiolus so myself; I have seen them in other gardens: and the effect was always surprisingly beautiful—so beautiful, in fact, that the casual observer often refused at first to believe that the flowers he or she stood admiring were really “nothing but glads,” and would exclaim, “Why, I never saw them planted that way before!” Exactly so—but there is no reason why they should not be planted that way.

Consider a moment the advantages which the gladiolus has to offer as a garden or landscape flower, aside from its excellence for cutting.

The gardener, even an inexperienced beginner, is in a very real sense a painter of pictures. Flowers are the pigments for his canvas. And what other fairly tall plants can he find so useful as the gladiolus? The range of colors is almost without limit. The bulbs may be planted easily wherever a few square inches of soil is available. They even may be pushed down through the roots of another plant, as the slender upright growth of the foliage will not interfere with other things in the bed or border. Results may be counted upon with certainty. The cost of the bulbs is little—and if one takes the slight trouble to save his own stock, may be had in increasing numbers from season to season without additional cost. Nothing is easier to plant than a gladiolus bulb; and by making several plantings, blooms may be had continuously, or at any time desired, from June until frost. If planted during April and early May the plants will flower at a season when the perennial border is usually rather “off.”

Can you picture a group of a dozen or so tall spikes of some orange or yellow gladiolus, in front of blue delphiniums; or a towering white variety against a background of evergreens? I doubt if you can, if you have never seen them. But there is no reason why you should not see them, in your own garden, this

season. To produce effects such as these, one thing only is necessary: discard the idea that gladiolus bulbs *must* be planted in straight rows at regular intervals four to six inches apart!

Give your gladiolus an opportunity really to enjoy themselves in your garden!

CHAPTER II

TYPES AND VARIETIES

THE "glad" beginner, quite naturally, always wants a list of the "best" varieties.

But there are no "best" varieties! The best of today is surpassed by the better of tomorrow. And what is best today? That is a matter of personal taste.

Of course, it is possible to say that one flower is a purer white, or a cleaner yellow, than another. But who is qualified to state that a spike of enormous blossoms, crowded thickly together along the stem, is more beautiful than another spike having flowers half the size, but of equally good color, spaced loosely along a more graceful stem, so that each individual blossom shows? A flower which appeals particularly to one person may seem to his neighbor stiff, stilted, and wholly unattractive, despite its having fine color and enormous individual blossoms. On the other hand, what one gardener considers a truly graceful and "artistic" formation, may seem to another thin and weedy. Who, then, shall presume to tell the beginner what varieties will be, for him or for her, the most beautiful?

If you are growing gladiolus, no matter on how small a scale, acquire a general familiarity with each leading *type*, as a preliminary step to the selection of *varieties*.

What is a type?

The gladiolus, like most of our other garden flowers, is the result of hybridizing, or cross-breeding, wild species. Most of the wild species of gladiolus hail from North Africa; a few from southern Europe. With gladiolus the results of domesticating the wild species have been so marvelous that the modern garden varieties only slightly resemble their original progenitors.

Nevertheless, certain characteristics have been inherited from the species, or from the distinct new "races" which resulted from cross breeding them, and persist in the modern varieties. The differences in these marked characteristics give us the various modern types.

DEVELOPMENT OF THE GLADIOLUS

Gandavensis, so far as is known, was the first race or type to be introduced for garden use as the result of hybridizing the wild species. It originated at Ghent in Belgium in 1837, and was characterized by many flowers closely set along the spike, by its scarlet color, striped effect, and late flowering. It immediately became popular, and gave the gladiolus a place among garden flowers.

Brenchleyensis, produced in England in 1848, and named after the town of Brenchley, was a bright vermillion scarlet, and the next step forward.

Many varieties of both these types were developed, giving a wider range of colors, but nothing startlingly superior.

Lemoinei. France was the next country to give an impetus to gladiolus culture. The famous Victor Lemoine, of Nancy, introduced in 1885 an entirely new race—the lemoinei, or Butterfly-flowered. These were characterized by conspicuous throat markings or blotches, contrasting sharply with the rest of the flower. This characteristic is evident in many of the most popular varieties of the present day, such as Mrs. Frank Pendleton. The Lemoine varieties were so distinct that they immediately revived enthusiasm for the gladiolus, and stimulated a new period of development.

Nancianus. A few years later, in 1889, Lemoine introduced another great race, the Nancianus, characterized by its larger and more wide open flowers.

It is from these four types that most of the later types have directly descended, largely by crossing varieties of these with each other, or with the wild species.

Childsi. This fine race, which was created in Germany by Max Leichtlin, may be called the first of the modern type of

gladiolus. They were more vigorous in growth and had larger and more attractively colored flowers than any of their predecessors. The stock was brought to America by Hallock & Sons, of Long Island, where further development was immediately and vigorously undertaken. Some years later the entire stock was purchased by the late John Lewis Childs, who renamed the type Childsi, and introduced it. One of the early varieties of this race, America, is still undoubtedly the most popular gladiolus in the world.

THE GLADIOLUS COMES TO AMERICA

Up to this time, the development of the gladiolus had been entirely abroad. The plants found more congenial conditions in most parts of the United States and in southern Canada, than in Europe or England. Moreover their vigorous habit of growth, bold colors, and easy cultivation and propagation, proved well suited to the new gardens and new gardeners of a comparatively new country. They immediately sprang into great popularity. American bulb growers, and some amateurs, took hold of the further development of the gladiolus with enthusiasm and energy.

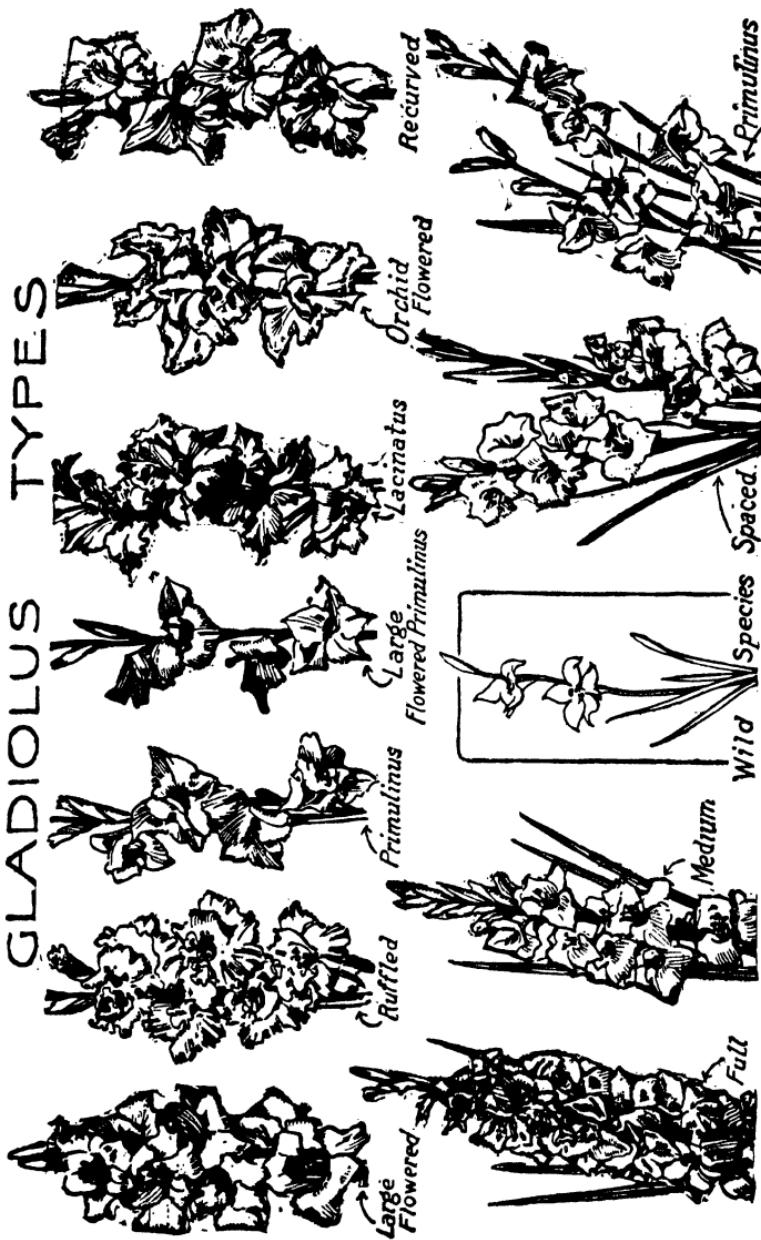
Groff Hybrids. One of the first Americans to be captivated by the gladiolus was H. H. Groff, of Canada, who developed a wonderful strain of Hybrids. He made the mistake—from a commercial point of view—of not selecting many individual varieties, but putting out most of his favorite flowers in mixture. These were grown and distributed in America by Arthur Cowee, of Berlin, N. Y. It was on a visit to his place in the early days that I first really came to know the modern gladiolus.

Kunderdi or Ruffled. In 1907, A. E. Kunderd, of Goshen, Indiana, introduced the variety Kunderdi Glory, with decidedly ruffled petals. This was not only new, but the first distinctly different type to be originated in America. It immediately caught the popular fancy, and since that time many wonderful ruffled varieties have been introduced not only by Kunderd, but by other prominent gladiolus growers.

Primulinus Hybrids. Up to this time growers of gladiolus

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Modern gladiolus are of such varied forms as to suit every taste and every purpose. The upper row, above, shows some of the flower forms, while the lower shows arrangement of flowers on the spike.

had given practically all of their attention to securing larger and more finely colored flowers. Yellow and orange shades, however, had been lacking, and it was in the endeavor to introduce these that the *Primulinus* species was drawn upon. The *Primulinus* species was not discovered until 1887. It was known as Maid-of-the-Mist gladiolus, because where it grew it was continually saturated with spray and mist from the great Zambesi Falls. Its distinct curved "hood" served to protect its stamens and pistil from the soaking spray. It was at first neglected by the hybridizers, undoubtedly because it had small and hooded flowers, and often crooked stems. The result of introducing the *Primulinus* blood, however, was the development of another distinct type, the *Primulinus* Hybrids, different not only in color, but also in form, from any flower of the older types. They have been gaining steadily in popularity ever since, especially as flowers for use in vases, and by florists. They have the further advantages of blooming early, and of growing well under glass. Kunderd's Alice Tiplady is still the most popular of the "Prims."

Primulinus Grandiflorus. The continued crossing and re-crossing of *Primulinus* hybrids with the larger-flowered types has brought into existence the *Grandiflorus* or Large-flowered *Primulinus*. It has very large wide open flowers, but retains the *Primulinus* characteristics of coloring, thin, wiry graceful stems, and flowers rather widely spaced. Many of the most beautiful of the newer varieties are of this type. The beginner may well obtain some of them for his start with gladiolus.

Lacinatus. Another new type, distinct in having lacinated or fringed petals, developed by Kunderd in the variety *Lacinatus*, was introduced first in 1923. The several varieties of this type introduced by Kunderd and others, such as Kemp's *Ruffolace*, are still scarce and comparatively high in price, but will soon be in reach of everyone. One of the great merits of the gladiolus, to the amateur, is that because of the rapid and easy propagation, the rarest of new sorts quickly becomes available to all. *Lacinatus* was first offered at one thousand dollars a bulb.

“Forcing” Types of Glads. Two distinct types or races I have not mentioned because they are not generally used for garden planting, although valuable for the amateur who grows under glass, as well as for the florist. These are Colvillei and Nanus. Both of these have long been in existence. To them has recently been added the Heraut, or “Herald,” and the Tubergen classes, which flower even earlier than either Colvillei or Nanus. The former have large, well-formed flowers and strong but not stocky stems: the latter are tall and slender and are the earliest of all. These types, although especially adapted to growing under glass, are also desirable for planting in the open for extra early flowers for cutting.

WHAT OF THE FUTURE?

Whither is the gladiolus tending in its ever-widening circle of development?

Any writer attempting to answer that question would show more fool hardiness than familiarity with his subject. It is safe to assume, however, that we have by no means begun to reach the limits of what is possible with this wonderful flower. To those who feel that we cannot go much farther, I would merely point out the following two quotations—the first from a book, “Bulbs,” by E. S. Rand, Jr., published in 1866, sixty years ago; and the second from “Bulbs and Tuberous Rooted Plants,” by C. L. Allen, published in 1893, more than thirty years ago.

“MULTIPLICATION OF VARIETIES

“This is an evil which will soon be felt. All of the world are raising seedling gladioli. At least one-half of the seedlings are equal to or better than old named varieties. Each grower names his favorites: and we are in danger of having a confusion of synonyms which will rival the palmiest days of pear-culture. How this can be remedied other than by a Gladiolus Convention is an interesting question.

“We have said our native seedlings are better than named varieties: we have reason to rejoice it is so, and we see no

reason for importing Gladioli when we can raise far better varieties than we can import."

So wrote Rand in 1866, and in 1893 Allen, speaking of the Childsi type, said:

"Seedlings have already been produced from them, showing considerable improvement. With the colors of Meyer-beer, Golden Gem, Snow White and General Phil. Sheridan transmitted into their forms, we shall have a race that will make further improvement seem impossible."

We have come a long, long way since Allen's prophecy was penned; but it would require a pessimist indeed, to say today that "further improvement would seem impossible." On the contrary, there are several still newer types already launched, or about to be launched, which still further will increase the usefulness of the gladiolus. How important they may prove to be, it is yet too soon to say, and how many other new types there may be already in existence, waiting to be "sprung" on the gladiolus public, I make no pretense of knowing. Among those already introduced are the "Orchid-flowering" types from California, of which the name is descriptive; the "Everblooming" type, with bulbs that normally throw several spikes of flowers, and when cut will branch again, making a secondary flower growth, of which the variety Los Angeles is the standard bearer. And the indefatigable Kunderd has two new ones, one with flowers of "snapdragon" formation, which are strikingly like that popular flower in form and color effect; and the other, called recurvii, which has distinctly recurved, twisted or curled petals.

The efforts of the hybridizers so far have been almost entirely toward getting larger and larger flowers, and better or different shades of color. Some reaction from this tendency is evidenced in the popularity of the Primulinus Hybrids, which have brought new forms as well as new color. Fragrance as a characteristic worthy to be developed has been almost entirely neglected,

although it is present in several of the wild species, such as *Tristis*, and in the *Colvillei* type. Hardiness also has been ignored. This is, perhaps, not serious in varieties grown primarily for cutting, but it would add tremendously to varieties intended for landscape use. Many of the species are much hardier than our present garden varieties.

It must be evident that we have by no means reached the end of the road.

SOME GOOD VARIETIES

Any list of varieties is always open to criticism. It must be founded largely upon personal preference; be kept within reasonable limits as to length; and must consider availability and price. Let me say at the outset, then, that there are other varieties as good as many of those which I shall mention, that might be included if space permitted. And many other fine things, no longer strictly new, are available in the catalogs of those who specialize in gladiolus, but are not yet generally listed in seed and nursery catalogs, which can of course mention only a fraction of the number the specialist handles.

Most catalogs of both seed-houses and specialists fail to give the blooming season of the varieties they list. This information is of the greatest importance to the beginner in making selections. Although most gladiolus may be planted repeatedly until midsummer to get a succession of flowers, the home gardener finds it more satisfactory to select varieties which will bloom over a period of a month or more from one planting. If he will do this, and make three plantings, say April 15, May 15 and June 15—earlier or later according to climate and season—he will with little effort keep himself constantly supplied with flowers from the latter part of June until frost. The early varieties will bloom in about seventy days or a little less; mid-season sorts in about eighty days; and late ones in about ninety days, or a little more. A few extra earlies, and a few extra lates, will extend the season a few days at either end, making possible a continuous succession of bloom through thirty to forty days from one planting.

Pink. Pink is undoubtedly the most favored color for glads; and certainly no other flower offers a wider range of shades and combinations in this color. The best known pink is America, comparatively old, but still the most popular glad in the world. Mrs. Frank Pendleton, rose pink with rich carmine blotch on lower petals, is one of the closest contestants for second place. Halley is a very early salmon pink; and Marshal Foch, later, is a splendid ruffled salmon pink. Panama is similar to America but considerably deeper in color, and Le Marechal Foch, an earlier and finer America. Of the newer pinks, Mrs. Dr. Norton has probably won the greatest popularity—cream colored with light pink shading, and particularly beautiful for cutting. E. J. Shaylor, very early, a pure, deep rose, was awarded a certificate of merit by the Royal Horticultural Society of England.

Other good pinks which have made places for themselves are Evelyn Kirtland, shell pink; Byron L. Smith, an orchid or lavender pink, with fine, wide-open flowers; Richard Diener; Mrs. H. E. Bothin; 1910 Rose; and Pink Wonder. Not so well known, but extremely beautiful, is Dorothy McKibben, which I consider one of the most attractive of all glads. It is a beautiful appleblossom pink, with graceful, ruffled flowers and charming buds. I first noticed this variety in the Chicago flower market, where among thousands of spikes of scores of varieties, it stood out distinctly.

Red, Crimson and Scarlet. Here also there is a good range of varieties. For bold and dazzling effects the red glads certainly have their place. Mrs. Francis King is, perhaps, the most popular of all. Princeps is another old favorite; War, a deep blood red, extra large, is a good later variety to follow these; the newer sorts, more expensive but well worth their cost, are Early Sunrise (which I consider one of the finest of all glads grown), a salmon scarlet with pearl shadings, extremely early; Joe Coleman, most effective for a dazzling blood red; Lustre, a very dark-growing orange vermillion; and Scarlet Wonder, immense in size, pure in color, very late. Sometimes classed with the red are the very deep wine purples or maroons,

of which Empress of India is the great prototype; Mrs. Watt, Goliath, and Anna Eberius, a truly wonderful flower, are all most desirable.

Among the ruffled red and red shades are Scarlet Glory, a deep, rich red and Purple Glory, a dark, velvety maroon, a giant in growth and extremely vigorous in habit; I have had good flower spikes from the smallest sized bulbs the first season; it is one of the greatest of all exhibition varieties.

White. While the white glads have never been so popular as some of the other shades, they are exquisitely beautiful. It is true that the old white sorts, of which Peace was perhaps the best, left a good deal to be desired. Even the newer ones have usually a trace of some other color—lavender, yellow or crimson—in the form of stenciling, penciling, staining or “featherings” in the throat. This, however, does not detract from their beauty. A planting including Lily White, L’Immacule, White Wonder—perhaps the finest, and one of the purest whites of all—and Europa, will bloom in the order given and supply cut flowers over a long period. Georg’s White is the giant of this class, and a remarkable flower. Purest White is small, but one of the daintiest and most graceful. Among the creamy whites, or very pale buff sorts, are Mary Pickford, extremely early, extra fine, and winner of many awards both here and abroad; and Helen Franklin, also extra early.

Of the ruffled whites, Snow Glory, pure white with light blue penciling; Mary Kunderd, exceptionally fine and pure white; and Fern Kyle, a creamy white, very large, are among the best.

Orange and Yellow. These shades include many of the most beautiful varieties, especially among the newer hybrids, where the Primulinus blood is increasingly evident. Although they are not quite so universally cataloged as some of the others, they are well worth making a special effort to get. Orange Queen, J. A. Carbone and Sheila are wonderful flowers. Pride of Lancaster, orange salmon, and Pola Negri, apricot, are two ruffled beauties of this type.

Yellow. A pure and clear yellow has always been a goal of gladiolus hybridizers. Schwaben, a canary yellow color, was

long the standard yellow, and is still largely grown. But Golden Measure, the most popular of the new yellows; Flora, one of the purest; and Gold, a very deep yellow, are much superior. A new yellow variety, Piccadilly, has been given the exceptional rating of 98; this variety I have not yet grown, but it has done finely at the shows. Golden Glory is the finest ruffled yellow I have ever tried.

Blue. The term "blue" must be used with some reservation, because there are no gladiolus of such blues as we have in other flowers, like delphiniums and forget-me-nots. The only blue I have seen that I could get enthusiastic about is a new Holland variety, Mrs. Van Konynenburg. It is now listed in several American catalogs and is quite generally available. The old Baron J. Hulot is a good color, but the flowers are rather small; it is, however, well worth growing and fairly early. Bluejay is considerably later. Mary Fennell, sometimes called blue, but really a deep lilac, and Mr. Mark, light blue, are superior in everything but color.

But if we forget the "blues" and are content with lavender and lilac, we find in glads some of the most delicately charming of all flower shades. Herada, a delicate mauve, is one of the best known, and should be included in every beginner's first order for glads. Sweet Lavender is the earliest I have grown of this shade. Muriel, light blue, and Louise, lavender, are both extremely pretty; Captain Boynton, lavender with darker spots in the throat, has carried off the honors at many shows; Violet Glory is semi-ruffled, very fine deep violet.

Any collection grown for showing should include one or two of the odd and fascinating "smoke colored" varieties which are of an indescribable blending of dark wine red, lavender, purple and gray. Rose-ash is one of the most striking, and immediately attracts attention in the largest collection. London Smoke, Ulysses and Ross Valley are others.

Primulinus and Prim Hybrids. The Primulinus type is much more limited in the number of varieties usually offered. But at the rate the new Prims, especially of the Giant-flowered or Grandiflorus class, are being introduced, it is not likely that

GLADIOLUS

this will long be true. If you grow no more than a half a dozen stalks of glads, select Prims for at least two of them.

Alice Tiplady, orange saffron, is the most popular of all. Maiden's Blush, a delicate pink, and Souvenir, a canary yellow, rank next in popularity. Among some of the newer ones are Orange Queen, exceptionally fine, Orange Brilliant and Salmon Beauty. Not so often mentioned, but the daintiest of any glads I know of for use with other flowers are Sweetheart, light cream with yellow shades, and White Butterfly, which is most happily named. Of the very large flowered Prims, Ming Toy, a unique Chinese yellow; Mira, deep salmon; and Gladdie Boy, equally distinct in color, have been most popular at the gladiolus shows. The latter I would rate toward the top of the list of all general purpose glads.

Of the ruffled type of Prims, Dorothy Wheeler, rose pink; Primunella, orange saffron; and Gold Drop, deep yellow, may be mentioned.

But it is not necessary to grow all these varieties in order to find the game worth while! Much pleasure is to be gained even in starting a "collection," with a dozen or so varieties. And if you want gladiolus principally for cutting or for garden planting, half that number will give a good range of colors, and a long period of bloom from one planting.

CHAPTER III

GROWING GOOD CUT FLOWERS

MOST of the several million gladiolus bulbs which are planted in amateur gardens every spring supply flowers for cutting. The show of color which they may make where they grow is of secondary consideration, despite the desirability of using them as garden flowers, which we have touched upon elsewhere.

The first step toward good spikes for cutting is to get good bulbs. A gladiolus bulb should not be judged by its size alone. A young vigorous "high-crowned" bulb, somewhat spherical in shape, is to be preferred to a bulb that may be considerably larger in diameter, but decidedly flat, or even concave. The accompanying illustrations show these two types of bulbs. The large flat ones are usually older. I would much rather plant a young round bulb, an inch or even less, in diameter, than an old flat bulb, two inches across. Some varieties tend more than others to make flat bulbs, and this, of course, should be considered. I have seen it stated that old bulbs flower earlier; but my experience has been the opposite.

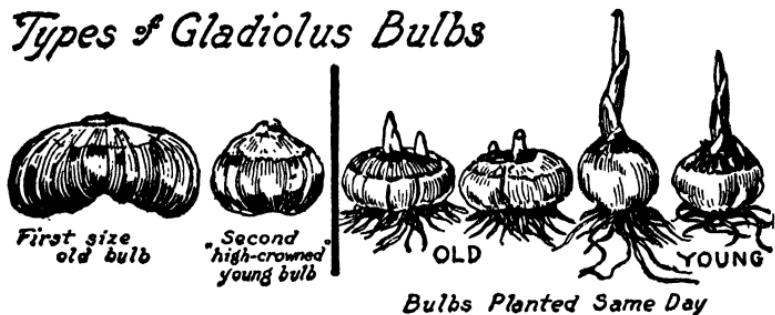
The young bulb has another decided advantage: it is likely to grow more bulblets, or "seed" bulbs, than an old one. This is particularly important if you buy expensive new varieties, stock of which you will want to increase as rapidly as possible.

Bulbs of the most popular varieties of gladiolus are sold by practically all seed houses, and usually are choice, dependable stock. The newer things may be found in the catalogs of gladiolus specialists, who are now located in all sections of the country. As a rule the seed houses sell only first size bulbs: those an inch and a half or more in diameter. Often the specialists quote prices also on smaller sizes. This offers the

GLADIOLUS

gladiolus fan who is making a collection of choice sorts a chance to get the flowers he desires at a considerable saving. A No. 2 bulb ($1\frac{1}{4}$ to $1\frac{1}{2}$ inches) or a No. 3 (1 to $1\frac{1}{4}$ inches) will usually flower satisfactorily under fair conditions. Still smaller

Types of Gladiolus Bulbs



Don't judge the value of a bulb by size alone. Young "high-crowned" bulbs are more vigorous.

bulbs, or even bulblets, may be purchased if one is willing to wait a year for blooms.

SOIL AND SITUATION

Gladiolus, as already mentioned, are not at all particular as to soil. I have grown them in heavy clay loam, in soil so light and sandy that it was necessary to mix in some heavier soil to give it body, and in nearly every soil between these extremes—and secured prize winning spikes. It is hardly too much to say that soil which will grow anything will grow glads.

Heavy soil that stays wet, however, will not do. The gladiolus likes thorough drainage, even though to reach perfection it must also have an abundance of water during the development of the flower spikes. Therefore soil which naturally retains moisture in abundance, or can be made to do so by proper handling, is particularly good for gladiolus culture. A soil which is deficient in humus, and consequently in moisture-retaining qualities, will not give the best results, no matter how much water may be applied artificially. Anything which may

be added to help the soil hold water is of direct benefit, and will result in larger and finer spikes of bloom. Soil that is naturally heavy will be much benefited by the addition of sand; and very light sandy soil should have loam or humus mixed with it.

The flowers will grow well even in soil that is quite stony or gravelly, if it is otherwise suitable; but such a soil will greatly increase the labor of harvesting and sorting the bulbs and bulblets.

As to location, gladiolus prefer full sun, but will do well in partial shade or in shade part of the day. Some protection from high winds lessens the chance that the spikes may be blown over, but is by no means essential.

As gladiolus require an abundance of plant-food and moisture, they will not do well when planted near trees or hedges which rob the soil of these elements. Even under such conditions, however, they may be successfully grown if extra feeding and watering make up for the loss.

FERTILIZERS AND MANURES

The statement is sometimes made that gladiolus are gross feeders, and that the soil cannot be made too rich for them. In one sense this is true, but in another it is not. It is quite possible to supply too much nitrogenous fertilizer, resulting in growth luxuriant, but soft and watery, and flowers which do not keep well. The new bulbs formed will be soft and liable to disease. For this reason, manures and fertilizers high in nitrogen—such as chicken manure, sheep manure, nitrate of soda, sulphate of ammonia, and dried blood—should be applied with caution.

If it can be obtained, good stable manure, thoroughly decayed, makes a splendid foundation for the production of good glads. Preferably, this should be applied to a preceding crop or in the fall; but it may be put on in the spring, just before planting, if thoroughly decayed. Fresh manure should *not* be used directly before planting. Fork or plow the manure under as deep as possible. The bulbs are planted four to six inches deep, and the roots go down still further. Manure and fertilizer should be

well buried; if too near the surface of the soil it will induce the roots to make their greatest growth there, exposing them to injury both from drought and from cultivation.

It is not always possible to get manure, however, and where it cannot be obtained a substitute must answer. Commercial "humus" is almost ideal for this purpose. Like manure, it supplies the essential humus, or decayed vegetable matter, which lightens up the soil and retains moisture. Commercial humus is a granulated, highly absorbent material, obtained from a certain type of bogs or meadows, made very fine. This humus, like decaying manure, establishes conditions favorable to the growth of bacteria in the soil, essential to maximum plant growth. Commercial humus may be purchased from any seed house or florist, and can be applied without danger when the bulbs are planted; even if they come into direct contact with it, they will not be injured. Pulverized peat is another excellent moisture retaining manure substitute.

Another method of supplying humus is to grow some green stuff during the winter for turning under in the spring. Rye sown thickly in September or October will make a green mat by the following April. The variety called Rosen rye is the best to use for this purpose, as it stools or branches more thickly than ordinary rye.

FERTILIZERS

A high-grade chemical fertilizer, such as usually finds favor for potatoes and market-garden crops, is often recommended for gladiolus. This is satisfactory if it is carefully worked through the soil so that the bulbs will not come directly in contact with it. Personally, I prefer a fertilizer made up of one part each of coarse raw bone, fine bone flour, and tankage. These three materials are sold by most seed houses, and it is easy to mix them together with a shovel or trowel when applying them. These are all "animal base" fertilizers and are less likely than chemicals to injure bulbs and roots.

Fertilizers should be applied at the rate of five to ten pounds to each one hundred square feet. Five pounds is sufficient if a

good coating of manure has been used; more with humus or peat or on rather poor new soil. I broadcast half the fertilizer after the soil is dug or plowed, but before it is put into shape, and add the remaining half in the rows when planting. This gives better results than applying all the fertilizer either broadcast or in the rows.

PLANTING

The two general systems of planting are in beds and in single or double rows.

Planting in beds produces a mass of color when the plants bloom that is much more effective than row planting. Beds are best used when it is desired to make a show where gladiolus are to bloom. A long bed or border, planted with a mixture which will flower continuously for several weeks in succession, makes a very fine display.

Where gladiolus are to be grown only for cutting, however, planting in rows is more satisfactory, both because of greater convenience in handling them, and because more thorough cultivation can be given.

When to Plant. As the gladiolus is really a "quarter-hardy," if not quite a "half-hardy" bulb, planting may begin as early in the spring as the soil is fit to work. Moderate frost after the shoots are above ground will do no injury. Extremely early planting is of no particular advantage, however, except for extra early blooms for cutting. As a rule it is well to make the first planting of gladiolus about the same time as the first planting of extra early peas. In the latitude of New York or Chicago this will be in late March or early April, in normal seasons. Plantings made later, even up to the first week in July, will flower satisfactorily, but it is important to remember that the longer the season of growth the better will be the development of the new bulbs and bulbets. My own method is to put in at the first and second plantings all bulbs of new or choice varieties which I wish to increase as rapidly as possible. I save for later plantings varieties of less importance, or of which I have a surplus, so that the formation of new bulbs is not a matter of serious

consideration. Bulbs from these late plantings may well be thrown into a "mixture" for very late planting the following year.

Distance Apart. Planted in solid beds, the bulbs may be placed six to twelve inches apart each way. The former is a little close for large growing varieties; the latter a little far for the less robust ones, such as the Primulinus type.

Where gladiolus are grown largely for decorative effect, interplanting among them will help greatly. Petunias are especially effective for this purpose, as the gladiolus foliage gives them just enough support to keep them off the ground. Many annuals of medium height, such as larkspur, lupins, phlox, extra early cosmos, annual scabiosa, marguerite carnations, browllia, and annual caliopsis, are excellent. Seeds of these may be sown, or plants set out, after the gladiolus are well started, both to enhance the beauty of the glads and to supply color after the faded flower stalks are removed.

This method of interplanting annuals with gladiolus is not generally followed, but it is easy and inexpensive, and few gardeners who try it will be satisfied again to have gladiolus in beds by themselves. It is true that these additional plants somewhat interfere with the cultivation of the soil around the gladiolus stalks, but this is made up for to a great extent by the more thorough shading of the soil.

When planted in rows, the first-size bulbs are generally spaced four to six inches apart. For commercial bulb production, or when smaller bulbs are used, they may be put somewhat closer. If planting in double rows, put the pairs of rows about six inches apart, "staggering" or alternating the bulbs in each line. One advantage of the double row is that the stalks help support each other. Personally, I prefer the single row system. Cultivation is easier and can be done much more thoroughly, and if the bulbs are planted as deep as they should be, support will not, under ordinary conditions, be necessary. The distance between the rows may be eighteen to twenty-four inches—the latter is none too much for strong growing varieties in rich soil.

Depth. There is considerable difference of opinion as to just

how deep it is best to plant bulbs. Some authorities put it at six inches. I rather doubt if anyone who advocates this depth of planting has actually measured with a rule the depth of soil over the bulb before writing down his advice! From long experience with many different types of soil, I would say that three inches in heavy soil, four inches in medium loam, and five inches in light, sandy soil is sufficiently deep to cover the bulbs. Somewhat shallower will not be harmful. These measurements are from the surface to top of bulb after planting.

Many growers think that comparatively shallow planting favors the abundant production of bulblets or cormels. I do not know that this theory has ever been scientifically tested, but there seems to be considerable evidence to support it. Early planting, comparatively shallow covering, growth maintained without a check by means of irrigation, and the removal of the flower spikes with the opening of the first buds—or even sooner if one is certain of the varieties—is the combination to play for the maximum production of bulblets.

Planting the Bulbs. On more than one occasion I have been annoyed by directions to plant gladiolus six inches deep, followed later with the information that bulbs were to be planted in furrows opened up with the wheel-hoe, or in a drill made with a hand-hoe. Go into the garden and try to open up a furrow an honest six inches deep with either of these implements! It isn't done. The best tool I have found for planting glads on a small scale is a hand garden plow. This implement is entirely distinct from the ordinary wheel-hoe; it turns a real miniature furrow, and is ideal for the work. Where a garden plow is not available, the next best thing is to use a single wheel-hoe, with plow or hilling blade attached, run twice in the row; and then clean out the furrow with a hand-hoe, preferably one of the heart-shaped or "Warren" types, which is designed especially for opening up furrows. If the soil has been thoroughly pulverized and made mellow, as it should be to be fit for planting bulbs at all, this work can be done very rapidly.

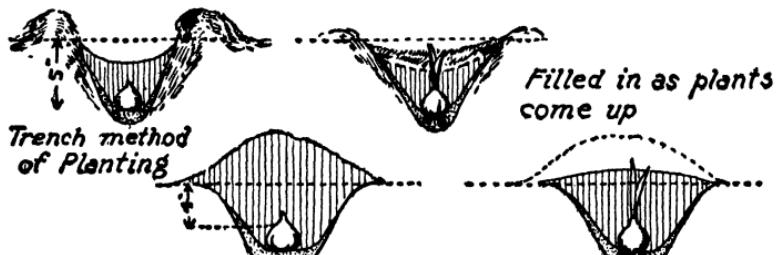
Next, if fertilizer is to be sown in the rows, it may be strewn along the bottom and worked into the soil with the hand-hoe.

If there are several rows of considerable length, this may be done more quickly with one or two cultivator teeth attached to the wheel-hoe. The object is to mix the fertilizer as thoroughly as possible with the soil in the bottom of the trench, without filling the latter up too much. If the soil is wet or very heavy, strewing sand, humus or peat along the bottom before placing the bulbs is helpful.

The bulbs should be carefully set in, right side up, working them down into the soil if necessary to get the proper depth. The ordinary method of covering is to throw in the soil level with the top of the trench. There are two other methods, both of which are better because they eliminate most of the early hand weeding. The first is to fill the trench about half full when planting; then fill in the rest, covering the small weeds, as soon as the young gladiolus plants are above the ground level.



Ridge method of planting. Leveling ridges just before plants come up.



Ridge method of planting

Raked down as plants come up

Two methods of planting. The "trench" system is better adapted to very light, sandy soil.

The other method, which I like best, is to cover the row of bulbs so that a considerable ridge is formed above it. This can be done very rapidly by going up one side of the row and back the other, with the plow or hilling blade on the wheel-hoe. A week or ten days after the bulbs have been planted these ridges may be quickly and evenly levelled down with an iron rake, destroying all small weeds, and leaving a fine, even fresh surface for the glads to come up through. Of course, care must be taken not to delay this levelling off until the shoots have grown beyond the general soil level. By this system, early hand weeding and hoeing of the young plants is almost entirely eliminated.

To plant in beds, or in the flower or shrubbery border, where rows cannot be made, use a trowel. Make the hole of ample size, with plenty of fertilizer, mixed into the soil at the bottom, for each bulb. If a group of bulbs is to be planted in front of evergreens or shrubbery, fork up and thoroughly enrich a considerable space—say two feet square for a dozen or so bulbs—so that the roots will have plenty of room and abundance of plant food.

EARLY CULTIVATION AND CARE

The gladiolus responds particularly to soil cultivation. Since the rows are easily distinguished as soon as the plants break ground, even the lazy gardener can find no excuse for putting off this important work. Keep the hand-hoe or the wheel-hoe busy from the start, so that the soil around the bulbs and between the rows is always loose and friable. If the beds rows are gone over once in ten days, this work can be done almost as rapidly as one can walk. Remember that it actually takes more time to weed and cultivate carefully once a month than once each week.

Early cultivation may be quite deep—two or three inches. As the plants reach the height of a foot or more, and the roots, which tend to grow out laterally, develop, the depth of cultivation should be lessened, especially close to the rows. An excellent implement for cultivating gladiolus is the Planet Jr. wheel-

hoe with a pair of "prong-hoe" attachments. This prong-hoe consists of a set of three cultivator teeth cast in one unit, so arranged that the tooth next to the row works shallowest, and the one farthest from the row deepest. This attachment does not come with the wheel-hoe, but may be obtained as an "extra" at slight cost. You will find it useful with many vegetable crops as well as with glads.

I am a great believer in the ordinary garden rake as an implement for cultivating, but it is of little use where the surface of the ground is allowed to become hard. If the rake is used a few days after the wheel-hoe, you can go over the ground between the rows very rapidly, and establish a finer "dust mulch" than with any other tool I know, excepting possibly the Planet Jr. Star pulverizer or mulcher, which is an instrument with small revolving cut-out discs. The Baker weeder and mulcher is another excellent tool for rapid work. The dust mulch, of course, is tremendously important in conserving moisture, and should be re-established as soon as possible after every rain or irrigating.

Hilling, or working up some soil to the plants, as they reach a height of two feet or so, is often practiced. This tends to keep the plants upright, but if they have been planted deeply this is seldom necessary, even where high winds are common. The supposition that hilling helps to hold the soil moisture is erroneous; it rather tends to have the opposite effect. The advantage of hilling is greatest in rather heavy wet soil, where shallow planting has been necessary and better drainage is desired.

Top-dressing. Adding plant food while the plants are growing is good practice, but it is hardly necessary under ordinary circumstances, where the soil has been well enriched before planting. This is described in Chapter VII.

Staking. Supports for tall-growing varieties of gladiolus may be necessary where they are exposed to high winds, or where it has been necessary to plant shallow. For ordinary garden culture it is not needed. Directions for staking are given in Chapter VII.

CUTTING AND KEEPING FLOWERS

To the impatient beginner whose gladiolus plants have been growing vigorously for several weeks, it may seem that the flowers will never develop. Then some fine morning he will find that the "spike" for which he has been waiting, has appeared, mysteriously and suddenly, from inside the last—usually the seventh—leaf. It shoots up rapidly, and soon the first flower, the lowest bud on the stalk, will begin to show color at its tip.

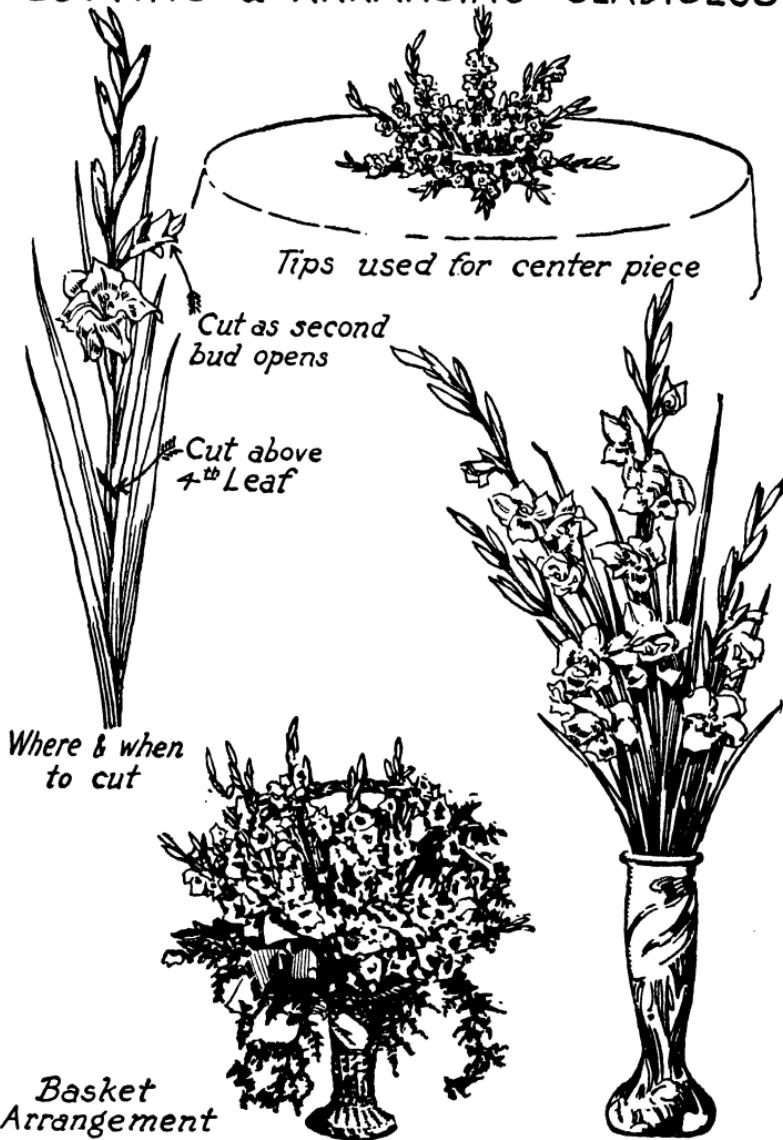
Most varieties should be cut when the second flower begins to open; if then properly treated, the remaining flowers will open, one by one, indoors—the spike lasting for a week to ten days.

Where good bulbs for the following season are wanted, at least three, and preferably four leaves, should be left on the plant. If cut down to one or two, the growth of the new bulb will be practically stopped. By using a sharp knife, and cutting carefully, the spike may be cut far down, and the stem pulled out of the enclosing sheaf of leaves. In doing this, hold the base of the plant firmly in position with the foot, as otherwise the bulb may be twisted and the roots broken in the soil. The spikes of choice new varieties I prefer to cut with no foliage at all, or at most only the top leaf. Such "naked" spikes may be arranged in vases or baskets with leaves cut from less desirable varieties, with sprays of "Baby's Breath," with the common garden asparagus, grasses, or with any similar suitable foliage.

The stem should be taken with a slanting cut. The best time to cut is early in the morning. The spikes may then be removed to a cool shady room, or to the cellar, and left in fresh cold water for half a day or more, before being placed in the living rooms.

Change the water daily, or every other day, and cut off a small portion of the stem, leaving a fresh surface which will absorb water readily. As the bottom flowers fade, they should be removed. Snap them off, by pressing them down close against the stem, instead of attempting to pull them. When only the three or four top blossoms remain, the rest of the spikes

CUTTING & ARRANGING GLADIOLUS



*Basket
Arrangement*

Illustrations can give but a faint idea of the beauty of gladiolus as cut flowers. It is easy to have them constantly from July until frost.

may be cut off and arranged in shallow bowls, or with other flowers. These "tips" are more attractive than when left at the top of long, denuded spikes.

It is often advocated that the top two or three buds be pinched off when the spikes are brought in, the theory being that those remaining will open up more quickly and evenly. It has always seemed to me that this practice largely destroys the beauty of the spike, leaving it stiff, stunted and wholly lacking in grace.

CHAPTER IV

PROPAGATION: GROWING FROM BULBLETS AND FROM SEED

THE gardener whose sole purpose in growing gladiolus is to have a few dozen spikes of flowers for cutting, with the least possible trouble and effort, will find that the simplest method is to buy a new supply of bulbs each spring, and not to bother with them further after his object has been attained. The annual cost will be little and the return great.

But anyone who becomes really interested in gladiolus, and begins to experience the keen delight of building up a collection of fine varieties, will want to save and increase his stock.

This is easily done by any amateur who will take the trouble to save his old bulbs, and the new bulblets or cormels which they develop, for planting again the following spring. It is easier to grow gladiolus from bulblets than it is to grow good garden peas. Once you have learned how to do it you will have the means of increasing your stock of the varieties which you particularly like; of keeping yourself supplied with fresh, young vigorous bulbs that will give the best results; and of acquiring new rare introductions at a small fraction of the cost of first-size bulbs.

THE GLADIOLUS PLANT: How It Works

Speaking botanically, the gladiolus is not a bulb at all, but a corm. Cut through, it will be found to consist of solid, rather hard flesh, instead of being built of a series of scales like the lily, or of layers of flesh like the common garden onion, which are true bulbs. We have, however, employed the term "bulb" in speaking of gladiolus corms, as this is general usage.

The gladiolus reproduces or propagates itself in three distinct ways.

When a mature bulb is planted, it does not, like the narcissus or onion, split into several smaller bulbs. During the season's growth it is entirely replaced by a brand new bulb, which grows above the old one. When a large bulb is planted, two, three, or even four, new bulbs may be formed in place of the old one. The remains of the old bulb will hold the new ones together until it is removed.

In addition to this, there will be formed around the base of the new bulb or bulbs, bulblets (or more properly cormels) which are sometimes referred to as "spawn," and which, after another season's growth, will develop into regular gladiolus bulbs. It is from these bulblets that commercial propagation of named varieties is carried on by bulb growers. The number of bulblets produced is sometimes enormous; numerous instances are recorded where they numbered more than a thousand to a single old bulb. Some varieties are shy bulblet makers, and for that reason always remain high in price. Most of the varieties with Primulinus blood bear many bulblets. The average variety may be counted upon to give from half a dozen to twenty-five.

But the gladiolus has a third multiplication table up its sleeve—or rather, up its stalk. It seeds freely from natural pollination by winds and insects, and produces in large quantities seeds that are easy to grow. The home gardener may never care to bother with growing plants from seed, though this is the channel through which the plant breeder or hybridizer does his work. But as growing from seed is very fascinating, and not difficult, there is no reason at all why the amateur glad fan should not try his hand at it.

GROWING FROM BULBLETS

The cormels, bulblets or spawn vary in size from that of a shot to bigger than a large-sized pea, and in shape from almost spherical to quite elongated and pointed.

The ordinary practice is to sow the bulblets directly in the open ground, as early in the spring as the soil can be worked.

To do this means to take a very long chance on germination, in which they are most erratic. One lot out of several planted in the same way, and looking equally well kept, may come up "thick as hair on a dog," while another will germinate less than ten per cent. Not infrequently, they will lie in the ground for weeks, sometimes for a whole year, before germinating. When first gathered, the little brown bulblets are comparatively soft and milky; they can easily be "squashed" between the thumb and forefinger. But by spring, the outer skin or shell may be so hard that it would be difficult to cut through it with a knife. The degree of hardness acquired depends both upon the variety, and the conditions under which the bulblets have been kept. It is this hard outer shell which interferes with germination.

Either of two simple methods of treating the bulblets before planting will bring maximum germination. Since the cost is nothing, and the time required is little, it is hard to understand why anyone should follow the common practice of sowing directly in the open ground without preliminary treatment.

The first method is to keep the bulblets in moist peat in a fairly warm temperature, 40 to 50 degrees, for a week or so before planting. The length of time will depend upon the variety, the temperature, and the condition of the bulblets. They should be carefully watched so that they can be planted *immediately* they begin to sprout. For small quantities, cigar-boxes make convenient containers for the peat and bulblets, which may be planted together when they are ready. Sand may be used in place of peat, but it is heavier, does not retain moisture so well, and is more likely to leak out around the house.

The other method is to soak the bulblets in lukewarm water until the shells are soft, and a tendency to sprout is indicated. Forty-eight hours' soaking will usually be sufficient, but the exact time necessary varies greatly. A few years ago, I had the direction of planting several tons of bulblets, all of which were soaked in this manner in water kept at an even temperature with steam. Several leading growers from different parts of

the country said that the germination which resulted was the most even they had ever seen on a large scale.

If but a few bulblets of some choice high-priced variety are to be grown, I use still another method which has given me the best results of all. I have never seen it advocated in gladiolus literature, but it is so simple that anyone can use it. It is well known that for the best development of the bulbs, the first season from cormels, an early start and a long season of growth is essential. A four-inch, square paper pot, of the type used for starting early vegetable plants, will accommodate up to a dozen bulblets, giving them much more space than they would have as ordinarily planted in the row. (The new flower pots, made of compressed peat, are even better for this purpose, as they do not dry out so quickly.) In these pots, filled about one-third full of rich compost, and then nearly to the top with light sandy soil and peat (or humus) mixed together, the bulblets may be planted. Cover them about one-half inch deep, and then start in an ordinary cold frame or in a sunny window. A high percentage of germination will be secured, and the little plants—which should, of course, be well hardened off before being set out of doors—will have a running start that more than compensates for the slight trouble. With this method, a worth-while percentage of many varieties will bloom the first season, and the bulbs obtained will average very much larger than if the bulblets are sown in the usual way. For larger quantities of bulblets ordinary "flats" may be used instead of paper pots.

PLANTING IN THE OPEN GROUND

Whether the bulblets receive any preliminary treatment or not, the place selected for them should be the richest and mellowest soil available, and it should lack nothing in preparation. Mark off rows a foot to fifteen inches apart, and make wide furrows, so the bulblets may be sown in a band two or three inches wide. Plant them much as you would garden peas, so thick that they almost touch each other, and cover them with a low ridge of soil. This ridge should be raked down

before the small plants break through. It is extremely difficult to clean out weeds among the tiny gladiolus shoots, which greatly resemble blades of grass, and breaking down the ridge does away with much of this labor. Plant deep enough so that the bulblets will be an inch and a half to two inches below the surface after the ridge is raked down to the garden level.

Label each variety carefully when planting, using a good stout wooden stake at least twelve inches long, which will not get knocked out of place during the summer.

Keep the little bulblet plants not only well cultivated between the rows, but free from weeds *in* the rows. If weeds are allowed to get a start it is almost impossible to remove them without uprooting the little gladiolus plants. A top-dressing of some good fertilizer, such as bone meal and tankage mixed half-and-half, when the plants are about six inches high, will prove beneficial. Irrigation during dry weather will keep the little plants from ripening prematurely, and by prolonging the season of growth will produce much larger bulbs.

The harvesting of bulblets is described in the following chapter.

GROWING FROM SMALL BULBS

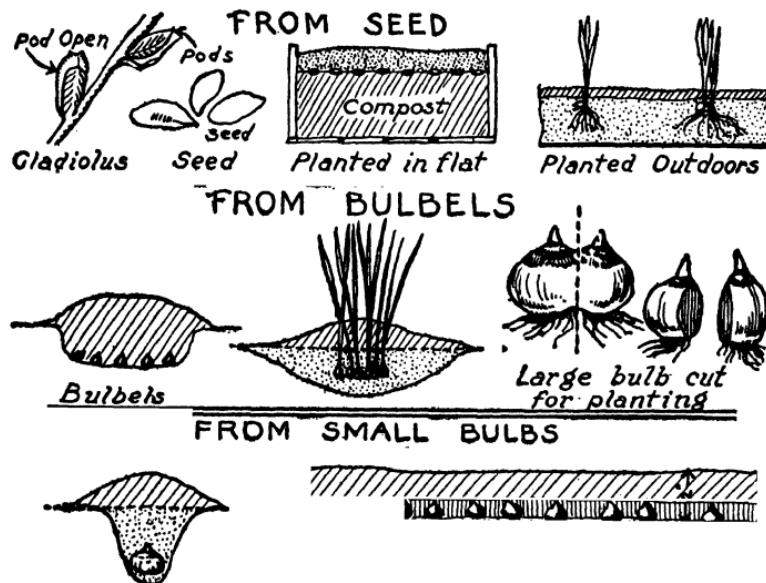
In "growing on" small bulbs—three-quarters of an inch or less in diameter—to larger size for another season's planting, much the same methods as described above should be used. No preliminary treatment is necessary, as every bulb will sprout. Since these small bulbs average considerably larger than bulblets, they should be given more space. Make the rows fifteen to eighteen inches apart; scatter the bulbs so they will be an inch to two inches apart (it is not necessary to set them right side up); and cover two to three inches deep.

GROWING FROM SEED

The gladiolus seed is a thin, fibrous membrane with the germ or fleshy part nearly at the center, in size and general appearance not unlike a parsnip seed. They will germinate readily as

soon as thoroughly dried out after maturing, but not so freely or quickly after they have been kept for several months.

There are four general methods of growing from seed: (1) They may be planted in a moderately warm greenhouse, a few weeks after gathering; (2) they may be sown in the greenhouse or a hot-bed in February or early March; (3) in an ordinary cold-frame in March or early April; or (4) in the open ground



One of the fascinating things about raising gladiolus is that you can grow your own bulbs—even your own varieties, if you care to.

in April, May or early June. Seeds sown in March or earlier usually produce a considerable number of flowers the first season, if they can be kept growing straight through without a check. Practically all of them should flower the second season. Seeds sown in May or early June will germinate in about two weeks—much more quickly than earlier sown seed—but few if any flowers may be expected the first season.

While the little seedling plants transplant readily they may

be grown all of the first season without transplanting, if the seeds are sown so that they do not touch each other. This is the usual method. To assure their growing for several months without a check, it is necessary to provide them with plenty of plant food in advance of sowing. This may be done easily, by placing six inches or more of rich compost below a surface layer of very light porous soil one inch thick, in which the seed is sown.

Elaborate descriptions of the preparation of the compost are usually given, but I have found the following mixture fully satisfactory: one-third each of rotted manure, at least a year old, garden loam, and humus or leaf mold. (If the garden loam is very heavy, some sand should be added to "cut" it.) Mix these together and run through a screen, with some bone meal and wood-ashes added for fertilizer—say a quart of the bone and four or five of ashes to each bushel of compost. This compost should be put five or six inches deep in boxes in the cold-frame or hot-bed, or in a specially prepared seed-bed out of doors where the seeds are to be started.

Over this place an inch of light porous soil—say one-third each of sandy loam, humus, and pulverized peat. The latter two are easily obtained from any seed house; or screened leaf mold may be used in their place. No manure or fertilizer should be used in this top layer.

Plant the seeds one-fourth to one-half inch deep in rows an inch and a half to three inches apart. Have the soil thoroughly moist *before* planting; press the surface down gently after planting; and keep well shaded until after the seedlings begin to break ground; do not allow the surface to dry out, but water no more often than necessary, and *thoroughly* when you do.

The soil between the little rows of seedlings should be frequently stirred, and the seedlings themselves kept scrupulously free from weeds.

Keep the plants growing steadily without a check, applying a little nitrate of soda or dried blood if the foliage begins to lose its healthy dark green color, which should be retained until as late in the season as possible. If the seed bed is allowed to dry out, the little plants will ripen up very suddenly and pre-

maturely. This does not injure them, but results in smaller bulbs than would otherwise be obtained.

CUTTING LARGE BULBS

Where the gladiolus grower has but one, or a few, bulbs of a variety he would like to increase, the natural reproduction may be hastened somewhat by cutting old, large flat bulbs into two, three or even four pieces, *provided* each piece carries with it an "eye." The location of the eyes may be seen readily by carefully peeling back the husk or outer covering of the bulb.

The cut surfaces should be dusted with sulphur or semesan and after they have dried for a day or two they may be planted in the same way as ordinary large bulbs.

CHAPTER V

HARVESTING AND STORING

As already implied, the longer the season through which gladiolus are kept actively growing, the better the bulbs and bulblets produced. They cannot, however, always be left in the soil until fully ripened or matured. There is danger of their being frozen in, and of difficulty in getting them out properly if the work is delayed until heavy fall rains have set in.

Time to Harvest. The best time to take up the bulbs, therefore, must be determined by practical considerations as well as by the condition of the bulbs.

The small bulbs, grown from bulblets, should be harvested first. If these have been planted not later than April, the foliage will usually begin to turn brown by August or early September. They should then be taken up at once, while the tops still adhere firmly to the bulbs. If left until the tops die down, the work of taking them out will be doubled or trebled, and many of the bulbs will be lost in the soil. The same is true of small bulbs grown from seed.

Plants from larger bulbs will usually continue to grow vigorously for several weeks after the flower spikes have been removed. Too often, when they are through blooming, the beginner forgets about his glads entirely, and they are not taken out of the ground until late in the fall when the first severe frosts serve as a reminder that they must be taken up—or lost.

The proper time to take them up is *after the leaves begin to turn yellow*, but before they die down entirely. Bulbs gain

nothing by staying in the ground after this, and the bulblets will be much more likely to shake off and get lost in the soil if harvesting is delayed beyond this time.

Harvesting. The work of taking out the bulblets may be done much more quickly and thoroughly with some preliminary preparation. First of all, the soil between the rows should be thoroughly cleaned up. If there are weeds present, cut them off, and rake them out before starting to dig the bulbs. To do this, I use a wheel-hoe with the hoe-blades set point to point, or ——— shape.

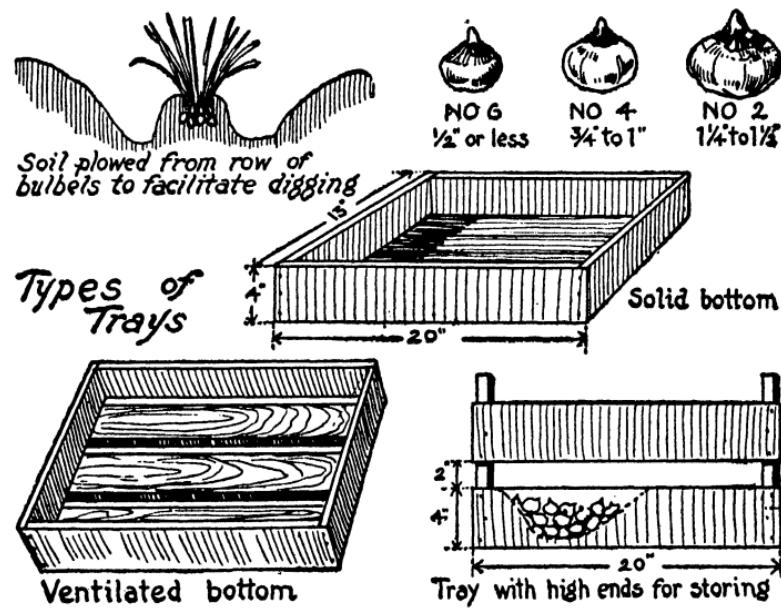
Next I put on one of the plow attachments, and go up one side of the row and down the other, plowing a three or four inch furrow *away* from the row. This leaves a narrow strip of ground containing all the bulblets, with clean soil on either side of them. The rest of the work is a hand-and-knee job with the trowel. For this purpose I use a perfectly flat mason's trowel with pointed blade, but an ordinary trowel or hand fork will do. Start at one end of the row, cutting just under the bulblets with the right hand, and at the same time lifting them "by the hair" with the left. If the soil is dry, most of it will shake out readily, and the little bulbs, tops, and such soil as still adheres to them, may be placed in flat trays and left to dry in the sun until late afternoon, and then removed to the cellar or shed where they are to remain until cleaning time. If at the digging time the tops are still fairly green and vigorous, they may be cut off to within three or four inches of the soil before taking out the little bulbs.

With large bulbs, much the same method can be followed. The soil may be plowed away more deeply from the side of the row. The dead tops should be removed two inches or so above the soil before starting to take the bulbs out. In digging or "lifting" use a flat-tined spading fork. Thrust it into the soil three or four inches from the bulbs, and then push down on the handle end, so as gently to lift up and loosen the bulbs. When thoroughly loosened, they can be lifted carefully out of the broken soil with practically all the bulblets adhering to them. The bulbs as dug should be placed in tight shallow boxes, and

GLADIOLUS

allowed to dry out in the sun for a day or so before being taken in.

The "curing" or *gradual* drying out of the bulbs should be continued for several weeks after harvesting, before they are ready to be stored away for the winter. Where but a few dozen bulbs are being handled, so there is no great amount of moisture to be got rid of, this matter will largely take care of itself.



The equipment needed for harvesting and storing is simple. You can make trays like these yourself.

Bulbs in quantity, however, should be spread out in shallow trays or boxes, preferably with slatted or perforated bottoms, to permit the freer circulation of air, and stacked above each other, so that there will be a two or three inch air space between the layers of bulbs. (This may be done readily by making the trays with the ends slightly higher than the sides, as described later.) The place where they are to be cured should be frost

proof. Thorough ventilation is also essential. A moist, still atmosphere is almost sure to develop mold, and will provide just the right conditions for the growth of any of the corm diseases.

Cleaning. In four to eight weeks after harvesting, the bulbs and bulblets will be ready to be cleaned.

For the bulblets, this consists principally of taking the old tops off, and of sifting out through a screen of suitable size the loose sand and dirt. If the bulbs are to be offered for sale, small hard lumps of dirt and pebbles must also be removed. For home use, their presence does no particular harm. The bulblets may be cleaned by merely shaking them in a small ordinary sieve.

In cleaning the larger bulbs, the remainder of the old withered bulb at the base, and the stubs of the tops, should be taken off. The bulblets, which will now be quite hard, and ready to fall from the bulbs, should be carefully saved if wanted for further propagation.

For home use, the bulbs of each variety may conveniently be separated into three different sizes—large, medium and small. Small ones should be planted back in the spring for growing on, and the others used for flowering. The smaller ones should be planted first in the spring, if “succession” plantings are to be made. For commercial purposes, the bulbs are usually graded into six sizes: No. 1, $1\frac{1}{2}$ inch or over; No. 2, from $1\frac{1}{4}$ to $1\frac{1}{2}$ inch; No. 3, 1 to $1\frac{1}{4}$ inch; No. 4, $\frac{3}{4}$ to 1 inch; No. 5, $\frac{1}{2}$ to $\frac{3}{4}$ inch; and No. 6, $\frac{1}{2}$ inch or smaller. Some of the gladiolus specialists quote prices on each of these different sizes, for the new and comparatively high priced varieties.

Storing: A temperature of 40 to 45 degrees F. is quite ideal for storing gladiolus bulbs. An occasional drop below 40, so long as they are not actually touched by frost, or a rise to 50 or so, will do no injury.

Large bulbs may be kept in trays, or in paper bags, preferably in a cellar where the air will be fairly moist—but not “dank”—so that they will not dry out excessively and shrivel.

Bulblets, on the other hand, are usually allowed to dry out entirely too much. They will keep in better condition to germinate in the spring if packed in fairly moist sand. This

should be examined from time to time, and if found to be getting dry, moistened, and thoroughly stirred up, so that it will not pack down hard, for air is necessary as well as moisture. Granulated peat may be used in place of sand; it is lighter and cleaner to handle, but care should be exercised to get it merely moist—not wet—when mixing the bulblets with it. Peat is much more retentive of moisture than sand, and will usually go through the winter without any remoistening, if kept in a suitable place.

If there is no place available to keep the bulbs excepting a cellar heated with a furnace, or a closet where they are likely to become too dry, they may be protected by being placed in boxes, filling around them with sawdust or peat as they are packed.

HOME MADE EQUIPMENT FOR HANDLING GLADS

The gardener who merely grows some gladiolus along with his other flowers will need no equipment other than the ordinary "flats" or shallow wooden boxes such as are used for starting small plants.

The gladiolus enthusiast, however, who may be trying to keep track of twenty-five to a hundred different varieties, and aiming to increase stock of some or all of them, will find it worth while to devote a few hours to making some special bits of equipment.

First will be required some extra deep flats in which to start bulblets in paper or peat pots. If these are made four inches deep, and 13 x 21 inches in size, each tray will accommodate fifteen four-inch square pots or dirt bands. These pots are also excellent for starting bulbs to secure extra early flowers for cutting.

For starting seed in the house, near a sunny window in the cellar, or in the cold-frame or hot-bed, other boxes should be prepared, seven or eight inches deep and of about the same dimensions. Thinner sides may be used, making the boxes less cumbersome, if a couple of two inch by one inch braces are placed in the center and securely nailed to keep the sides from bulging out.

Flats used in harvesting and storing cormels or bulblets will be convenient to handle if made in two different sizes, the largest a full 18 x 36 inches *inside* measurement, and the smaller a scant 12 x 8 inches *outside* measurement. These can be "nested" when not in use. Or by placing one small tray in one of the larger, an 18 x 24 inch space is left, which may be used for a lot of bulbs which might be too big for a single small tray and not large enough to fill a large tray.

Where a considerable number of bulbs are to be stored, the ends of the trays may be made 1 to 2 inches higher than the sides. For ordinary home garden use, however, short pieces of one-by-two inch board inserted at the corners as the trays are stacked up will answer the purpose.

Some of the trays may be made with solid bottoms to be used for gathering the bulbs in the garden, or for storing bulblets; but most of them should have bottoms made of two to three inch strips with openings a quarter to a half an inch between. One-eighth inch mesh galvanized wire screen may be used for bottoms, pieces of cardboard being inserted when it is desired to make one absolutely tight. This will not be necessary excepting for handling the very smallest of bulblets.

An exceptionally good and serviceable crate, which has been exhibited at recent gladiolus shows, and is designed both for long life and convenience in use, may be purchased ready-made. Bulbs and bulblets may be placed in it at digging, and dried, cleaned and stored, if desired, in the same crate.

For handling bulbs or bulblets in considerable quantities, a swinging tray may be built without much difficulty. Sieves with different sized mesh wires—such as one-quarter inch for bulblets, and three-quarter or one inch for larger bulbs, may be made to go with it.

For the construction of trays, second grade cedar is good material. For the bottom of sieves, use extra heavy galvanized wire; and for flats or boxes in which to grow seed or bulblets, second quality cypress.

CHAPTER VI

THE CREATION OF NEW VARIETIES

THE real gladiolus enthusiast will seldom be satisfied until he has tried the raising of new varieties absolutely his very own. This is, without any question, the most thrilling experience in gladiolus growing.

It matters little that we are already well supplied with gladiolus varieties, or that there is small chance of one seedling in a thousand, yes, in many thousands, being better than those which we now have. There is always the possibility that you or I may be the one into whose lap Fortune will throw the much desired prize. Anyway, the game is worth the candle just for the fun of it, whether anything commercially worth while is achieved or not. We can here agree with Stevenson that it is better "to travel hopefully than to arrive, and the true success is to labor."

The gladiolus is one of the easiest of all plants to hybridize or cross-breed; and, as we have already seen, it is not very difficult to raise the seedlings after the seed is obtained.

Even if one leaves the work of hybridizing entirely to Nature, merely allowing a spike of one of the best varieties to go to seed here and there, a great deal of enjoyment may be had in raising seedlings. But to get the real "kick" out of it, the gardener himself should do the hybridizing, working toward some definite end.

FIRST PRINCIPLES OF PLANT BREEDING

I cannot help but think, in putting down the words above, of those correspondence school courses which modestly offer to make a full-fledged musician or a thoroughly trained business

executive of you in seven simple lessons! In the few sentences available for the subject here, of course, even the A, B, C of plant breeding cannot be explained. Anyone who considers taking up the hybridization of gladiolus seriously should get all the information he can from such good books as "Plant Breeding," by Bailey and Gilbert, "Mendelism," by R. C. Punnett, and Darwin's works.

But even the amateur who is attempting to grow a few seeds chiefly for his or her own amusement can do better than to make the "crosses" in a wholly haphazard way. The first principles to be kept in mind are the following:

Have a definite ideal of some kind to aim at. If, for instance, you like the color of Baron Hulot (one of the first blues ever produced and still more largely grown than any other blue), you might attempt the production of a blue variety of this color with a larger and better shaped flower than the Baron is able to boast. Then you would take Hulot for one parent, and for the other select a variety with flowers of better shape and size, such as you would like to color blue. You may not get what you are after, but you are much more likely to come somewhere near it than if you did not try to aim in that specific direction.

Try to breed for *one particular point* at a time; this may be color, or form of flower, or size, earliness or lateness—to mention but a few of the possible objectives.

Familiarize yourself with the various fine points that go to make up a really worth-while glad, using the scoring scale given in Chapter VII, and measure your hypothetical new creation by these.

Select parents on the basis of their strength in the particular characteristic you wish to transmit, rather than just because they are extra fine flowers. Some of the most notable advances in gladiolus breeding have been attained as the result of going back to the wild species for one parent. In the same way, if you succeed in transmitting the characteristics you are after to one of your seedlings, it may make an excellent plant to breed from again, even though it may be an "ugly duckling" itself in other respects.

These are but a few brief suggestions to point the way. If the science of hybridizing intrigues you, follow it further. We must proceed here to other subjects.

THE DETAILS OF HYBRIDIZING

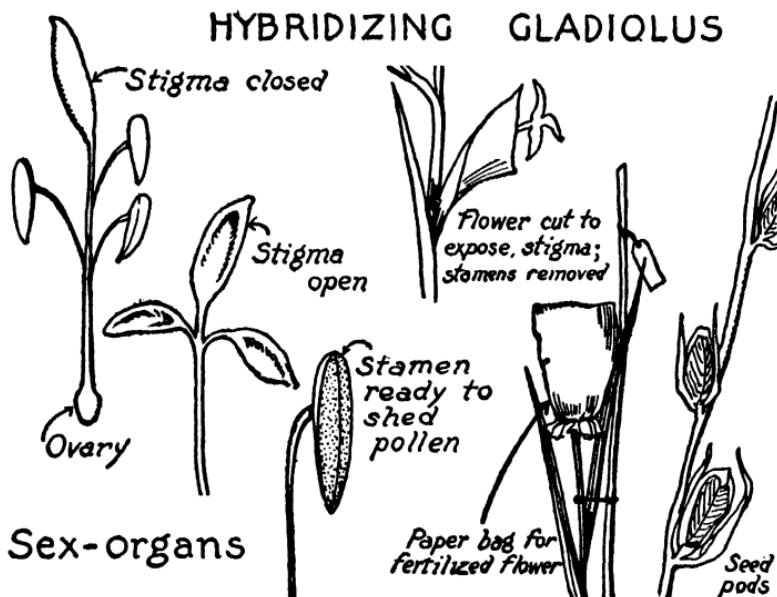
The gladiolus, as already remarked, is one of the easiest of flowers to hybridize. I have tried to make the details of the work plain in the accompanying diagrams, which should be studied with the text.

In order for the plant to produce seed, it is necessary that the stigma, or female organ of the flower, be fertilized or pollinated with the grains of pollen from the stamen or male part of the flower. If the pollen "takes," as the usual expression has it, impregnation results and seed is produced.

The gladiolus, like most flowers, is bi-sexual—that is, each individual blossom contains both the male and the female parts. Despite this provision for the flower to self-fertilize, however, Nature prefers that the pollen should come from another plant. To accomplish this end, she has arranged that the stigma does not reach the proper condition to receive the pollen until after the anthers (the pollen-bearing tips of the stamen) of the same flower have matured. The anthers usually split open, allowing the pollen grains to escape, soon after the flower has opened in the morning. The stigma usually remains closed until five or six hours later—in cool or dull weather sometimes until the following day. It is easy to tell when the stigma is ready to receive pollen, as the end opens out and becomes moist with a honeylike substance to which the pollen grains readily adhere.

To make sure that the plant you wish to select as the female parent—the seed-bearing parent—does not receive pollen from any other flower than the one you wish to cross with it, it is necessary to protect the stigma. This is done by removing the anthers of the flower as it opens, to prevent the possibility of self-fertilization; and then by tying it up in a bag so that bees, or other insects, or wind may not bring pollen from some other blossom. Some breeders, however, do not consider this necessary. The anthers may be saved if you wish to use their pollen for

another "cross"—possibly with the same two varieties, in which case, however, the *other* plant is used as the seed parent. Incidentally, crossing variety A on variety B will give results entirely different from crossing variety B on variety A. And often the cross will take one way, when it will not take the other. The *Primulinus* species, for instance, and the first generation Hybrids



Study this diagram in connection with an actual flower—and see for yourself how easily you can learn to hybridize.

from it, will seldom receive the pollen from other plants, whereas the *Primulinus* pollen is readily received by other varieties. If the pollen is received, it travels down the hollow stem of the stigma to the ovary, where the seed will be produced.

EQUIPMENT NEEDED FOR HYBRIDIZING OR CROSS-BREEDING

If when removing the stamens a small sharp-pointed pair of scissors are used to cut away the upper half or two-thirds of the petals of the flower, the stigma will be exposed, so that it can

be dusted over with the anther, held between the thumb and forefinger. With some wide open flowers this can be done without cutting off any part of the petals. Often a small camel's hair brush is employed to transfer the pollen, but this should be dipped in denatured alcohol between each "crossing." I have found it simpler to use common toothpicks, taking a new one for each cross. In this way there is no possibility of any pollen grains being carried from one flower to the next. With the toothpick it is also possible to extract the pollen from anthers which have not yet burst open. This pollen is just as potent. The pollen remains good for several days, but gradually becomes weaker, so it is best to use it from newly opened flowers if possible.

Light bamboo stakes should be used to stake securely each plant that is to be hybridized. This is not only to mark the plant, but also to protect it from injury. It is best to put the stakes in when picking out the seed parents and before undertaking the transfer of pollen. Any light wooden canes will serve if bamboo canes are not available.

Two or four ounce manilla bags are usually used for tying over the flowers to protect them. I prefer the waxed or glassine bags for this purpose, as they are less likely to tear if wet by rain. The special bags used for tying around bunches of grapes, supplied by some seed houses, are convenient, and come already equipped with a tie-string. More permanent bags may be made from "tobacco" cloth (unbleached cheesecloth). The bags are held in position by tying with a string, or fastening with strong rubber bands. If the end of the bag is moistened slightly before being put in place, it can be tied more tightly around the stalk. The upper half of the spike may be removed, as there is no object in fertilizing more than three or four blooms on a single spike.

Each plant pollinated should be securely marked with a small tag, showing the parentage, date of crossing, and so forth. These tags may be of cardboard, but are better of linen paper, which is more substantial. A record of each cross should also be made in a memorandum book. Usually the name of the seed-

bearing plant is put first; as for instance: "Lady Tiplady X Prince of Wales."

Saving the Seed. The protecting bag should be left in place until it is evident that the seed pod is beginning to swell. It will develop rapidly, and after attaining full size, it should be watched carefully to note when it begins to turn brown. The proper time for cutting is just when the seed pods *begin* to split open at the top. Then place them in some tight bottomed receptacle of suitable size, in a sunny window, safe from any draught which might blow them about, to complete their ripening. I find cardboard shoe boxes convenient for this purpose. If the covers are kept, they can be tied on after the seeds have thoroughly ripened, and each lot stored away until planting time. (See Chapter IV.)

INTRODUCING A NEW VARIETY

Should you, by good fortune and good management, secure a new seedling of exceptional merit, you will wish to know how to get it into commerce.

First of all, it would be well to get the opinion of some authority—or better still, of several—as to whether or not it is worth attempting to "introduce."

If the new variety seems to be worth introducing, exhibit it or have it exhibited at one of the leading gladiolus shows, especially the annual Show of the American Gladiolus Society. If the reception here seems favorable, and particularly if your seedling wins important prizes, then two courses are open: either to attempt to put it on the market yourself; or to take it to some gladiolus specialist or seed-house and see if they would be interested in "introducing" it. Unless you contemplate developing a number of other varieties, and are in a position to spend a considerable amount for advertising, printing and so forth, the latter plan is by far the better.

CHAPTER VII

GROWING GLADS FOR EXHIBITION

FOR the first year or two the new glad "fan" may be satisfied to exhibit his choice flowers only to his friends, where they grow, but sooner or later it is more than likely he will long to show his prize spikes to other gladiolus growers, and finally to put them to the acid test of entering them in competition with the best that his locality, if not his state or the whole country, can produce.

Exhibiting at flower shows by amateurs is to be encouraged. It helps forward a wider interest in horticulture with its health-giving recreation, and the development of beautiful homes.

But the exhibitor at the flower shows receives as well as gives. Renewed interest and enthusiasm, first hand knowledge of new developments, and much practical information are three of the advantages sure to come to the exhibitor in the intimate contact with fellow enthusiasts.

WHAT TO GROW FOR EXHIBITION

The first time you take flowers to a show, you will probably not decide to enter them until a few days or a fortnight before the exhibition, when you see that you are going to have some stuff that is really too excellent to be left to blush unseen in your private garden.

But you will probably begin making plans for your second show before the doors have closed on the first! This is as it should be, for at least a full year is necessary in undertaking seriously to grow for exhibition.

First of all comes the question of what varieties to plant for this purpose.

To answer this in a few words I would say, grow the varieties

which are winning prizes. If you attend the shows, or follow the records of the winners in the garden magazines, or in the official bulletin of the American Gladiolus Society, it is easy to know what these are. The catalogs of the various growers also give this information, especially concerning their own introductions. From half a dozen or more leading catalogs you can get a pretty good line on the prize winners of the past few years. Do not make the mistake of thinking that you must have the highest priced, latest introductions to stand a chance of winning. A generous portion of the prizes in any show always go to the standard leading sorts which have been available for years, and bulbs of which may be purchased at from ten to twenty-five cents. Moreover, as many exhibits call for but a single spike, or three spikes, and very few for over a dozen, it is not necessary to have a half-acre field of flowers from which to select. The few which you grow in your garden, even if it is merely of backyard size, can be given more intensive and individual attention than flowers grown in quantity are likely to receive. A few years ago, searching for a few spikes of Golden Measure to exhibit, I looked carefully over nearly a quarter of a mile of rows in a field, only to fall back finally on my own garden, where I had a dozen bulbs of this variety growing, to get the three spikes which finally won the prize.

Know in advance the different classes which make up the exhibits at the shows you expect to enter. Then select the best varieties you can find in each class in which you will compete.

Exhibition Types. Some catalogs describe certain varieties as exhibition types. This term does not mean that there is a type distinct from and set apart from all others. Some varieties may belong to two or three of these so-called "types." The term "exhibition" means usually that the variety has strong, straight spikes with wide open flowers facing one way, rather closely spaced, and with a number of blooms open at the same time. "Decorative" implies that the spikes of bloom are particularly well adapted for use as cut flowers for decorative arrangements, or for decorative effects in the garden. Many of the Primulinus hybrids belong to this class—and yet they succeed

in winning so many prizes that one cannot say they are not "exhibition" varieties, in the broader sense of that term. "Commercial" varieties are those which are both so popular and also so low in price that they are used in large quantities for cut flower purposes by commercial growers.

Judging Scale. Exhibits are judged according to definite scales of points worked out by the American Gladiolus Society. These scales follow:

SUGGESTED SCALE OF POINTS TO DETERMINE VALUES OF GLADIOLUS FOR DIFFERENT AND SPECIFIC PURPOSES

Flower	Landscape				
	Primulinus	and	Grandiflorus	Garden	Prims
Color	15	10	15	5	12
Surface texture...	5	5	5	00	3
Effectiveness					
en masse	00	5	3	10	8
Size	12	6	8	5	5
Form	5	4	10	00	12
<i>Spike</i>					
	Length of stem...	5	5	00	5
Florescence	10	5	8	00	10
				mainspike	5
Number open....	10	10	7	00	7
				laterals	5
Facing of bloom..	8	8	6	00	5
Spacing of bloom.	5	4	8	00	8
Attachment of				spikes per bulb	5
florets to stem..	00	5	00	00	00
Harmony	10	3	10	00	10
Keeping quality..	5	10	5	16	5
<i>Field Points</i>					
Foliage	3	3	3	10	3
Vigor	4	4	4	5	4
Productiveness ..	3	00	3	00	3
Bulb production .	00	3	00	3	00
Cormel					
production	00	3	00	00	00
Earliness	00	5	00	00	00
Precocity	00	2	00	00	00
Length of bloom-					
ing period.....	00	00	00	10	00
Ability of stem					
to support bloom	00	00	00	15	00
Plant resistance to					
wind	00	00	00	6	00

The American Gladiolus Society has also prepared an Instruction Book for measuring the blooms of gladiolus according to these ratings. One of these books, together with a pad of "work sheets," may be bought by members at a nominal price.

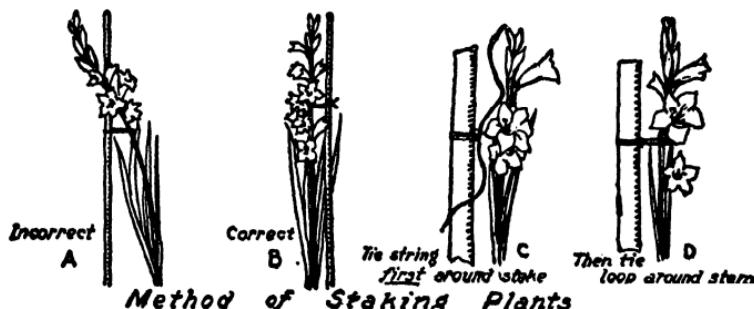
GROWING FOR EXHIBITION

In general the system of culture to be followed is the same as that already described in Chapter III. But more intensive methods, in some respects, will be justified.

Type of Bulb. Secure young, vigorous, high-crowned bulbs which are sure to produce the best flower spikes, and only a single spike to a bulb. Large, flat bulbs are likely to throw two or three spikes, none of them better than the average for the variety.

Soil Preparation. This should be started preferably the fall previous, by forking under a heavy coating of stable manure—cow manure if it can be obtained, particularly for light soils. Fertilizer may be added when the ground is worked in the spring, preparatory to planting, using up to double the amount recommended in Chapter II.

Planting. More space should be given the individual plants, setting the bulbs 6 to 8 inches apart in the row, and the rows preferably at least 20 inches apart. They may well be planted a full 6 inches deep in light soil, covering only two inches or so until the plants are above the ground, and then gradually filling up the trench.



If plants are to be staked, do the job correctly. Fasten tie first around stake, then around stem.

Staking. Plants may be staked, but even for exhibition purposes this will hardly be necessary if the bulbs are planted extra deep. If they are to be staked, use light stiff supports of bamboo, or painted plant stakes. Set the stake near enough to the plant so that the stalk need not be bent to be tied to it. Fasten the string or raffia securely around stake, *before* tying up plant.

Cultivating and Irrigating. Needless to say, every care should be taken not to let the plants suffer at any time. Cultivating cannot be overdone if it is kept shallow after the plants are half grown. Water should be given only often enough to keep the soil fairly moist—never soaking wet.

Here is the great secret of growing extra fine spikes. The first top dressing should be given when the plants are twelve to eighteen inches high. I know of nothing better to use for this purpose than a mixture of two parts of fine bone flour to one each of tankage and blood, as already described. Usually it is recommended that this be spread on the surface along either side of the row and raked in. The method I use is to open up a wide furrow with a wheel-hoe, as deep as I can go without injuring the roots, at least six inches away from the row; sow the fertilizer in this; mix it with the soil; and then, by running the wheel-hoe in the opposite direction, covering this with soil from the middle of the space between the rows of plants. This may be repeated once or twice if the plants do not appear to be making maximum growth.

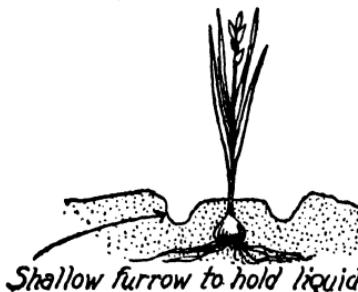
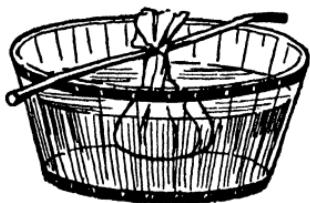
By the time the sixth leaf appears, or shortly after, the flower spike may be felt before it pushes its way up. This is the time to begin the last stage of intensive feeding. I have never found anything better for this purpose than liquid cow manure, although there are admittedly other things more convenient and agreeable to use. To make liquid manure, sink an old garbage can, or half a wooden barrel, half its depth in the soil in some out-of-the-way place; fill it two-thirds full of water and hang in it a sack containing a half-bushel or so of cow manure. A

fairly tight-fitting cover may be kept over it. This stock solution should be diluted with water before it is applied, until it is about the color of weak tea.

If one does not care to go to the trouble of making liquid manure he may use nitrate of soda, or dried blood, at the rate of a heaping tablespoonful to 8 or 10 quarts of water. I prefer the dried blood for all except the very light or white varieties, which may be made "streaky" by it. For these, I use nitrate of soda.

Any of these may conveniently be applied with an ordinary sprinkling can, but should be put on only when the soil is moist.

TOP DRESSING FOR MAXIMUM GROWTH



For prize winning spikes, feed the plants liberally. Top dressing with liquid manure is one of the most effective methods.

after a rain or thorough irrigating or watering. If a shallow trench is opened up along either side of the row—which may be done as rapidly as one can walk, with either a wheel-hoe or an ordinary hand-hoe—the liquid may be poured into this from a watering can, with the nozzle removed. Soil may be thrown over it afterwards. This does away entirely with any odor from either the liquid manure or the dried blood.

Still more convenient, but not quite so quick acting, are the concentrated plant foods or stimulants. There are several excellent preparations of this sort. Plantabbs, which have an analysis of eleven per cent nitrogen, fifteen per cent phosphoric acid, and

twenty per cent potash, are an excellent concentrated balanced fertilizer. They are small tablets which may be pushed an inch or so down into the soil.

A second application of the top dressing may be made ten days or so after the first, and a final one just as the buds begin to show color.

In addition, mulching the soil along the rows, or in the beds between the plants, with strawy manure, decayed leaves, lawn clippings or peat, is beneficial, particularly where the weather is likely to be extremely hot or bright before the exhibition date. Such a mulch not only retains moisture, but keeps the ground cool and helps to prevent the spikes from developing prematurely.

Timing for the Show. It is, of course, most important to have the spikes in prime condition at the time of the show. To accomplish this, you must know about how many days the varieties you expect to show require to bloom. Some catalogs now give this important information, and more undoubtedly will do so. You can ascertain it from the grower from whom you purchase the bulbs, or from other sources. It is advisable, however, to make two plantings of each variety, at intervals of about a week, as season and climate affect the time required to bloom. The date of planting is also very important: for instance, the same variety will bloom several days earlier if planted in May than when planted in early April.

Cutting and Shipping the Flowers. As a rule spikes for exhibition should be cut when the first bud is open. The lighter-colored varieties may be kept in quite subdued light, but the brighter-colored flowers should be placed where they will receive abundant light, without getting direct sunshine. It is desirable to have as many flowers as possible open on the spike to be shown; this can be increased by fastening a band of brown paper around the lower part of the spike, so that the lower flowers will receive less light than those above them.

Spikes must be handled carefully while being transported to the show, to keep them in good condition; and this is just as important when they are going only a short distance in a car or a

truck, as when they must be sent by express for a considerable journey. I have handled them with success as follows:

First, cut the spikes so that they can remain in water twelve hours before being transported. Second, wrap each spike in a sheet of waxed tissue paper, such as is used by florists. This is not expensive, gives considerable protection, and holds some moist air about the spike, thus checking evaporation. Third, pack the base of the spikes in moist sphagnum moss. The spikes may be laid flat in flower boxes so arranged that they will not weigh down upon each other; or stood upright in tall baskets—the latter being, perhaps, preferable. Empty banana crates are ideal for this purpose.

ARRANGING THE EXHIBIT

Your show program will state which exhibits are to be allowed points for good arrangement. Most individual exhibits are not—the flowers alone being judged. Nevertheless, the chances of winning are always lessened by a slovenly exhibit. Even so few as three spikes, tastefully arranged in a suitable container, are bound to make more impression on the judges than three equally good spikes merely stuck up at random in a milk bottle. Gladiolus spikes are rather difficult to "make believe" in arranging, somehow always electing to fall into the exact position where you do not want them. Sphagnum moss is excellent to use in the container to hold the spikes in position.

Where a number of varieties are being exhibited, the effect is much better if a few baskets or high vases are used, so that some sorts may be elevated above the others. The tallest varieties should always be placed at the back; and aim at a pleasing effect, with every spike plainly visible.

The Background against which the flowers show is much more important than most exhibitors, even many professional ones, realize. Dead black, or deep purple or maroon for light-colored flowers; and gray or gray-blue for the darker-colored ones, may double the effectiveness of the display. Where it is allowable, some other foliage or light, graceful flowers, or a few ferns or palms, will much enhance the attractiveness of the exhibit.

In selecting a location at the show, avoid a position which will be in a direct draught from doors or windows. Such a spot may feel cooler than a corner where the air is still, but flowers will "go down" in it quicker than anywhere else. The quickly moving current of air, resulting in rapid evaporation, causes you to feel cool; but rapid evaporation is the thing you most want to avoid for your flowers. A few years ago I had to replace most of a big exhibit at the American Gladiolus Society Show in New York, because of the draught which swept through that part of the hall during the morning before the show opened.

One final word: Do not "kick" at the awards of the judges. If you honestly cannot understand why the coveted prize should have gone to someone else, it is perfectly all right to find out, for information for the future. But don't be a sore-head. The judges are not playing favorites. They are carrying out to the best of their ability, and in accordance with their honest convictions—even as you or I would do—a task which requires much time and trouble, and which is at best a thankless one.

CHAPTER VIII

INSECTS AND DISEASES

FORTUNATELY, this subject need be given little space in a book on the Gladiolus. As stated elsewhere, in growing gladiolus for over twenty years, both as an amateur and commercially, I have never had them attacked by any insect. Even the omnivorous Japanese Beetle passess them by! The two insects which on rare occasions may cause some annoyance are as follows:

Cut Worm. This is the familiar soft, brownish, smooth-skinned cut worm, an inch to two inches in length, which is so prone to cut off cabbage plants, tomato plants, and other succulent and early vegetables.

There are several cut-worm "foods" on the market; or a poisoned mash may be made easily as follows:

One quart of wheat bran.

One teaspoonful of paris green or white arsenate.

One teaspoonful of cheap molasses.

Mix this with enough water to make a mash.

This should be spread in small quantities near the plant, late in the afternoon, as the worms usually work late at night or very early in the morning.

Even should the young tops be cut off, no damage will be done, as the new leaves will push up and the flower spikes will not be injured in the slightest.

Aster Beetle. This is the common black beetle attacking asters, by preference, but turning to other flowers such as roses, when asters are not available.

Early in the morning, while the dew is still on, the beetles are sluggish, and may easily be knocked off into a can containing kerosene and water. Spraying with paris green, with kayso

added to the mixture to make it stick better, is effective in killing the beetles, but of course they will have done some damage before getting the poison.

Field Mice. Occasionally field mice will get into the runs made by the moles and destroy gladiolus or other bulbs.

There are several good mechanical mole traps on the market; also poison preparations such as Molo for putting in the runs at intervals. Still more effective I have found the use of either carbon bisulphide, or carbon tetrachloride, which are liquids; or paradichlorobenzine, which comes in crystals; any of these substances, placed in the runs, forms a gas which is heavier than air, and will remain in the runs, asphyxiating the moles or mice.

DISEASES

Most of the diseases of the gladiolus show plainly on the bulb, so the infected stock can be detected, and discarded. They are, therefore, of more serious import to the commercial grower than to the amateur who, if he is careful to buy his bulbs from a reliable source, will usually get only clean, healthy stock.

Although the gladiolus diseases are few, they have proved to be among the most persistent and difficult to control. No really satisfactory cure has yet been found for any of them. Fortunately, however, methods of prevention are quite successful. The following comments on the several gladiolus diseases are based largely on information supplied by my friend Professor L. M. Massey of Cornell University, with whom I worked in the effort to clean up one of the largest commercial plantings in the country. Professor Massey is recognized as the American authority on gladiolus diseases.

The four diseases of most importance are hard rot, dry rot, Fusarium rot, and "scab," or neck rot. Of these, the first three are fungous diseases. Scab (or neck rot) is caused by bacteria. In all four, infection takes place mostly, if not entirely, during growth in the field or garden.

The Rots. The three fungous rots progress during storage quite rapidly when conditions are favorable to their development. I have seen trays of bulbs put away in September in

apparently perfect condition, come out three months later with twenty per cent of the bulbs so pitted and shrunken as to be worthless. This, however, was under commercial storage conditions; the home gardener has a great advantage in this respect, as his few dozen or few hundred bulbs may be kept dry and well ventilated much more readily than the tons of bulbs of the commercial grower, which must often be dug during unfavorable weather. The disease may progress until the bulbs become merely hard, shrunken "mummies."

The Scab. The scab, or neck rot, may be distinguished from the fungous rots described above, by its shallow, circular depressions, and the fact that it is not likely to develop further after bulbs are stored. It is generally necessary, in fact, to remove the skin or husk from the top portion of the bulb to determine if it is infected.

During the growing season, however, scab is more noticeable than any of the rots. The disease is carried to the garden or field on the bulbs, and develops later, causing the *decay of 6 to 8 inches of the lower part of the plant*, which falls over. The fungous rots sometimes cause plants to turn yellow and die, *through lack of nourishment*, as the result of the complete destruction of the old bulb before the new one, with its root system, has developed sufficiently to support the plant.

Spots in the foliage of growing plants may indicate either hard rot or scab; the former, however, rarely occurs on plants from blooming-sized bulbs. Scab may show as spots on the foliage of plants of all sizes.

Control Measures. From the nature of the four diseases described above, it is evident that control measures may be aimed at (a) checking the development of the several "rots" in storage; (b) disinfecting bulbs at planting time, to prevent carrying the fungus or bacteria to the garden or field; and (c) prevention of infection from the soil in which the bulbs are planted by treating the soil.

Treatment in Storage. This should really start in the field with harvesting. As moisture directly favors the development of all three of the fungous rots in storage, it is extremely

important that the bulbs be dried off thoroughly before being brought into storage quarters, and all soil adhering to the bulbs removed. In storage, the bulbs should be given a dry atmosphere, and maximum ventilation, particularly during the first four to six weeks after harvesting. Each tray of bulbs should have free circulation of air all about it; bulbs should be cleaned (see Chapter V) as early as possible, and each lot of bulbs should be pored over, or thoroughly stirred up every month or so during the winter. There is no danger of infecting new bulbs in doing this, as the disease, while progressing where it is already established, apparently does *not* spread from bulb to bulb in storage. The temperature should be kept as low as possible; down to thirty-five degrees Fahrenheit.

Sprinkling diseased bulbs with sulphur, or with one of the new mercurial fungicides, such as semesan, germisan or uspulon, is sometimes recommended. It is, however, doubtful as to whether this can have much effect, as only the surface of the diseased area is reached, and the diseases work inward.

Treating Bulbs at Planting Time. This has been found fairly effective in the treatment of scab or neck rot, but has not shown satisfactory results for the three fungous rots. The bulbs, with loose dust and litter removed, should be soaked two hours in a solution of either two ounces of corrosive sublimate to fifteen gallons of water, or one-half pint of formaldehyde to fifteen gallons of water. The bulbs should be planted immediately after treatment, or rinsed off in cold water and dried quickly. The new organic mercury compounds have not been found more effective than corrosive sublimate or formalin for this treatment. These treatments are useless unless bulbs are planted in disease-free soil.

Soil and Crop Rotation. No method has yet been discovered of eliminating the disease in the soil where diseased bulbs have been grown. The only safe method is to plant on clean soil where gladiolus have not recently been grown. It is desirable to have a skip of at least four or five years. Clean culture; the immediate removal of diseased plants appearing during the growing season—and preferably with each a shovelful of the

soil immediately surrounding it—and the cleaning up and burning of the tops at harvest time, will all help to eliminate the disease.

If the methods suggested above are carefully followed out, the crops which show signs of disease may usually be brought to healthy condition at the end of two or three seasons' growth. Where, however, one has limited space, it is much better immediately to discard diseased crops and buy new than to risk infecting the soil in the attempt to "clean up." Where one has a few highly valuable bulbs, they may, of course, be planted in an isolated corner or in a cold-frame where the soil will not be used again for gladiolus, or where it may be removed entirely.

Thus it is evident that the three essentials in growing clean stock are: first, to plant on new ground or ground which has not been used for glads for three or four years; second, avoid the use of fresh manure; and third—particularly as concerns scab—on soil which is not too sweet.

The home gardener, of course, is limited as to the amount of new ground he has available for planting; but usually his plantings of gladiolus can be shifted so as not to occupy the same soil oftener than every other year at least. Bulbs which show any sign of disease, however, should *not* be planted back in the same soil.

Soil which has been heavily limed may be benefited by a light application of sulphur. The gladiolus, like the potato, is much more prone to develop scab on soil which has been made too sweet by heavy applications of lime. Sulphur, which has the opposite effect, will put it back into a neutral or slightly acid condition. This should be spread on the surface at the rate of one or two pounds to the hundred square feet, and be raked in any time before planting, but preferably several weeks previous.

Even stocks which are diseased may usually be cleaned up in two or three years, by treating the bulbs before planting, as suggested above, and by then planting on fresh soil. Difficult as the gladiolus diseases are to control by treatment, the bulbs have a great capacity for growing out of them when given an opportunity to do so.

CHAPTER IX

THE AMERICAN GLADIOLUS SOCIETY

FOUNDED in 1910, the American Gladiolus Society has undoubtedly accomplished more than any other single agency toward developing and popularizing the gladiolus in America.

It was at first largely a growers' or commercial organization, founded and maintained by men who had business interests in the gladiolus, although a few enthusiastic amateurs also helped.

The moving spirit in the organization of the Society was the late Maurice Fuld, one of the most unique figures in later day American horticulture, and a man of unbounded enthusiasm and energy. I had the pleasure of growing for Mr. Fuld, for several seasons, a collection of his choice varieties—the first commercial production, so far as I know, under overhead irrigation.

Most of the important commercial growers in this country still take an active part in the affairs of the American Gladiolus Society; but through reorganization, and a modified policy, it has become strictly an amateurs' organization, and is now one of the most efficiently managed and active of all the national flower societies. A separate organization has been established to take care of the special problems of the commercial growers. One of its objects is to develop better service and still better quality of stock, as well as standardized business practices—all of which are of direct benefit to the amateur who buys gladiolus bulbs.

Since 1921, the membership of the American Gladiolus Society has increased more rapidly than that of any other flower Society. This is due largely to the splendid service which the Society is now rendering its members. The object of the Society is set forth in its constitution as follows:

This Society is formed for the purpose of stimulating interest in and promoting the culture and development of the Gladiolus and to establish a standard nomenclature; to work toward eliminating the diseases of the Gladiolus; to disseminate information regarding this flower; and to encourage the production and propagation of worthy new varieties.

All members of the Society receive its publications, including *The Gladiolus Review*, official bulletin of the Society, which is a small monthly magazine devoted to the gladiolus, and filled with just such practical experiences and information, and reports of new varieties at the various shows, as every gladiolus enthusiast wants.

One of the Society's most important projects is the encouragement of gladiolus exhibitions in all parts of the country, and the organization of state and local gladiolus societies, news of which is given each month in the Review.

The American Gladiolus Society offers substantial prizes not only at its own annual show, but at other large shows given by the many affiliated societies and at State fairs and similar gatherings.

The dues of the Society are two dollars a year. The Secretary is Roscoe A. Huff, Goshen, Indiana, who has worked unstintedly in helping to build the Society up to its present large membership and splendid efficiency.

CHAPTER X

GLADIOLUS FOR PROFIT

THIS little book makes no pretense of serving the needs of the commercial grower; nor is it the intention of the author to urge any amateur grower to break into the commercial ranks—to “get into the glad game,” as it is popularly termed.

The fact remains, however, that the present commercial growers of gladiolus have been recruited, more generally than have the growers of any other flower, from the ranks of the amateur. And I think it is also true that there is no other flower with which one can so easily make some “pin money” as a by-product of one’s garden hobby.

The simplest way of making your glads bring home some bacon is to grow the cut blooms for sale. I know of a great many amateurs who do this, and some of them have done it for years without ever having been tempted to get deeper into the game. It requires little capital and is a pleasant part-time—one might say fraction-time—occupation.

The success which the beginner may reasonably hope to achieve in selling cut gladiolus depends almost entirely upon the character of his or her immediate market. There is no trouble about the production end of a gladiolus business of this kind. If you are located on a road where automobile traffic of the right sort is heavy during summer and autumn, it should be less trouble to build up a roadside market sale of satisfactory proportions. Where the proper location is available to start with, such a trade if intelligently handled will build itself almost automatically.

There is not space here to go into the details of roadside selling, but one thing is so important that I shall mention it in

passing. That is, to have plenty of parking space easily available, and your main signs two hundred feet or more from the place of sale. That distance is needed in which to slow down and stop a car. And you will soon learn that they will *never* turn around and come back, no matter what the inducement.

Another point is to have packages and paper and string ready to do up a neat package quickly. The automobile trade does not like to wait; nor can you expect it to be pleased with a loosely tied, straggling bunch of spikes, dripping wet.

If roadside selling is out of the question on account of location, the next best thing is to get a few large users who will be *regular* customers. In this class are hotels, restaurants, drug stores, ice-cream parlors, and so forth. If you can get a few contracts to keep places of this kind supplied with flowers during July, August and September, there is real profit in it. Try to get even your private customers to agree to take flowers regularly. There is little in merely selling an individual bunch here and there.

The type of flower to grow will depend upon your market. If your customers are mostly people of means who will appreciate something extra fine and different, you can well afford some of the newer things which they will not see offered elsewhere. Once you have them, your stock of bulbs will go on increasing, and it costs no more to grow the very finest than to have those which may be seen anywhere.

Getting into bulb raising is much more difficult. To extend it to a paying mail order business will require considerable capital in addition to the growing of the bulbs. Strictly local sales, however, among neighbors and friends, and possibly to the customers who have bought and been pleased with your cut flowers, requires little additional capital except for a few boxes and labels.

To the person who may have been thinking of giving up his present occupation, and taking up the growing of glads as a means of livelihood, I would not say definitely, "Don't"; but I would say emphatically, "Hesitate!" Judging from the number of inquiries which come to me every year, there appear to be a

large number of people who seem to think that at least a good living, if not ease and affluence, can be made almost immediately in some branch of horticulture. The possibilities appeal to them more than the work they happen to be doing, and they are ready to "chuck" the old job and chance all of their savings on the new venture. Generally such a break, unless ill health makes it imperative, is ill-considered. It is better at least to hold on to the old work until a start has been made in the new; any business capable of furnishing an income such as is needed to supply the necessities of life under present conditions must be learned through study, training and experience; and even gladiolus growing is no exception to this rule!

On the other hand, I would not say, as some do, that the ranks are already overcrowded and that opportunity no longer exists. That was said twenty years ago—and perhaps was more true then than it is now. Gladiolus consumption has increased at least as fast as production, and the long predicted over-supply is not yet in sight.

As President Moody, of the American Gladiolus Society, says:

"Have a hobby, grow some glads."

Let them "pay for their keep" if you care to, but move slowly toward looking to them for a livelihood, until after you have actually tested it out for yourself on a smaller scale first.

CHAPTER XI

ONE HUNDRED MOST POPULAR GLADIOLUS

THE nearest approach to any official "rating" of either the popularity or the merits of gladiolus varieties is the data secured as the result of a symposium by the members of the American Gladiolus Society, held in 1924. Since then, of course, many new sorts have made their way to the front.

The 71 varieties which received an *average rating* of 85 or more, are briefly described below; the others are listed by name only. Detailed descriptions and illustrations are available in the catalogs.

This list is of considerable value as a guide to the beginner, lost in the maze of varieties. Many of the fine new things are not included in it; but most of those which are, will be well worth growing for some years to come.

One interesting result of this symposium was that the Primulinus variety, Alice Tiplady (Kunderd) received the greatest *number* of votes. Mrs. Dr. Norton (Kunderd) and Anna Eberius (Diener), both comparatively new, tied for second place; and the ruffled Purple Glory (Kunderd) won third.

A. G. S. SYMPOSIUM LIST

Varieties which received an average rating of 85 or more.

Albania (Kemp): Pure, glistening white; flower wide open, four inches or more in diameter.

American Beauty (Diener): Brilliant American Beauty color; throat creamy yellow striped; flowers very large.

Bennett, Dr. F. E. (Diener): Peach-red, with flame scarlet throat speckled ruby and white.

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Bothin, Mrs. H. E. (Diener): Light pink, flame scarlet center; heavily ruffled.

Carmen Sylva (Prestgard): A pure white, violet veining in throat; straight slender stems.

Chateau Thierry (Vos): Cerise with yellow bordered red blotch.

Coleman, Catherine (Coleman): La France pink, midrib white.

Crimson Glow (Betscher): Scarlet-primrose throat.

Diener, Richard (Diener): Pale geranium pink; well ruffled.

Diana (Zeestraten): Clear, rich blood red; extra fine spike.

Douglas, Mrs. Leon (Diener): Begonia rose striped scarlet; extra large flowers and long spikes. Most spectacular exhibition variety.

Eberius, Anna (Diener): Deep purple, shading to deeper center; most distinct.

Elf (Diener): Lemon yellow buds; flowers pure white with lemon lip.

Elkins, Dr. (Kunderd): Large pure white, purple blotches on lower petals; sport of Mrs. Frank Pendleton.

Elkhart (Kunderd): Extremely rich glowing lavender rose, deeper at throat; exceptional.

Farrar, Geraldine (Diener): Pale lavender violet, with violet spot on lip; vigorous grower; one of the new *branching* type; A. G. S. prize for finest blue Glad.

Florence (Souchet): Bright lilac, white blotch on lower petals; tall spike.

Flora (Velthuys): Pure canary yellow; substantial extra large flowers; fine exhibition sort.

Foch, Marshal (Kunderd): La France pink; blotched scarlet red in throat; vigorous growth.

Foch, Le Marechal (Heemskerk): Soft lavender pink; larger and earlier than America.

Ford, Henry (Diener): Dark purple; somewhat smoky; very striking; exhibition.

Giant Myrtle (Kunderd): Delicate soft pink; extra large showy spike.

Giant Nymph (Coleman): La France pink; with creamy yellow throat; wide open flowers.

Glendale (W. B. Davis): Dark American Beauty rose.

Goehl, Henry C. (Fisher): Creamy white; red blotch in throat.

Gold (Hoeg): Fine, clear yellow; excellent for cutting.

Golden Measure (Kelway): Vigorous grower; one of the best pure yellow.

Hale, Virginia (Kunderd): Delicate cream, blending to soft pink.

Herada (Austin): Pure mauve, deeper in throat; extra fine.

Jewell (Zeestraten): Salmon pink, with a golden yellow throat; wide-open flower.

Kent, Thos. T. (Diener): Pale pink, straw throat, blotched carmine; very striking.

Kent, William (Diener): Ivory yellow; rose-pink at edges; well ruffed; exceptionally good form.

Kirtland, Evelyn (Austin): La France pink, throat blotched soft red; very vigorous.

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Kunderd, Marie (Kunderd): One of the finest pure whites, with delicate pink veins in lower petals; ruffled; extra early.

Kunderd, Anthony B. (Kunderd): Primrose cream, flushed pink; deeply ruffled.

Kunderd, Robert J. (Kunderd): Clear, orange scarlet; wide-open, slightly reflexed flowers.

Kyle, Fern (Kunderd): Creamy white, much ruffled, most artistic.

Leota (Coleman): Pinkish rose; creamy white throat with lavender blotch.

Lind, Jenny (Hoeg): Shrimp-pink; deeper at tips of petals; ruffled; very delicate variety.

Lohrman, Mrs. Richard (Diener): Creamy shell pink, pale yellow lip; heavily ruffled.

Louise (Wright): Glistening white; blush pink; throat blotched purple.

Maiden's Blush (Grullemans): Flesh-pink; flaked old rose, throat suffused mallow pink; long, wiry stems; extra early; primulinus.

Maine (Vos): White, pale yellow lip; strong grower.

Masterpiece (Kunderd): American Beauty rose color, fine spike.

Ming Toy (Kunderd): A wonderful buff on Chinese yellow giant-flowered prim hybrid; most distinct.

Mona Lisa (Kunderd): Palest rose pink; extremely delicate; finely ruffled.

Moulton, Mrs. Geo. W. (Kunderd): Pure cerise, deeper throat, tall and vigorous.

Mouquet-sully, Mme. (Lemoine): Cream white; distinct carmine blotch on throat.

Norton, Mrs. Dr. (Kunderd): Delicate pink; wide-open flowers on tall slender stems; very graceful.

Peach Rose (Kunderd): Deep rose pink, fine spike.

Pendleton, Mrs. Frank (Kunderd): Deep rose-pink, pale pink throat; red blotch on lower petals.

Peters, Mrs. F. C. (Fischer): Amaranth pink with a purplish blotch on throat.

Phipps, W. H. (Diener): La France pink overlaid; flowers enormous.

Pickford, Mary (Kunderd): White; primrose in throat.

Pink Wonder (Kemp): La France pink; paler at throat; immense flowers.

Pollyanna (Prestgard): Clear, rich golden yellow; finely waved petals.

Purple Glory (Kunderd): Tyrian rose, suffused amaranth-purple; slightly flaked; dark, velvety purple throat; ruffled.

Remembrance (Kunderd): Geranium-pink, deeper at edges, blotched purple; slightly ruffled.

Salmon Beauty (Kunderd): Deep salmon, salmon-yellow throat; large flowered primintims.

Scarlet Princeps (Kunderd): Brilliant scarlet, extremely vigorous.

Scarano (Kunderd): Very striking bright red; fine spike.

Shaylor, E. J. (Kunderd): Deep rose pink, buds distinct rose; one of the best cut flowers.

Sheila (Coleman): Light coral red; flesh-pink throat; primrose blotch on lower petals; good early.

Snow Glory (Kunderd): Fine pure ruffled white; clear iris blue veins on lower petals.

Souvenir (Brown): Pure golden yellow Primulinus Grandiflora; one of the best giant-flowered prims.

Spokane, Miss (Kunderd): Orange pink, extra large, ruffled, very tall.

Sweet Lavender (Coleman): Light lavender with blotch on throat; one of the earliest of all.

Tabor, Elizabeth (Hinkle): Delicate rosy pink; crimson blotch on lower petals; extremely early.

Tiplady, Alice (Kunderd): Orange pink, deeper at edges and reverse; buff yellow throat; most popular Prim.

Van Fleet, Dr. (Kunderd): A splendid extra early rose-pink, deeper at edges, with canary throat; of new "re-curved" lily-like type of flower.

Walsh, Mrs. J. R. (Diener): Large, flesh pink; dark ruby throat; deeply ruffled.

Varieties which received an average rating of less than 85.

Burke, Mary Stearns	Muriel
Butterboy	Myrtle
Challenger	Rose
Early Snowflake	Neoga
Elora	Peace
Europa	Prince of Wales
Fennell, Mary	Red Emperor
Gold Drop	Romance
Illuminate	Rose Asin
Kent, Adeline	Rose Glory
King, Mrs. Francis	Sulphur Glow
London, Jack	Titanic
Loveliness	Violet Beauty
McKibbin, Dorothy	War
White Wonder	

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